Composing with Theories of Emotion in Music: A Critical Commentary

Submitted in partial fulfilment of the requirements of the Manchester Metropolitan University for the degree of Doctor of Philosophy

Awarded for a Collaborative Programme of Research at the Royal Northern College of Music by the Manchester Metropolitan University

David Curington

September 2015

Contents

List of Figures

Acknowledgements

I am firstly enormously grateful to the RNCM and its research department for the Studentship award I have received which has enabled me to study at the institution for my PhD without financial pressures; I hope to have made the college proud of my work and cannot overstate how valuable a place to study it has been for me.

I would like to thank my supervisors Dr Fabrice Fitch and Dr Larry Goves for guiding me through my doctoral studies and overseeing the period of greatest growth in my understanding of music thus far, allowing me to transform beyond recognition as a composer and leaving me much more level-headed and assured as a person. If I ever get a job as a composition teacher, then you have given me tough acts to follow.

I could not imagine a better head of the composition department than Prof. Adam Gorb and I thank everyone in the department, both students and staff, with whom I have had conversations about music and whose music has given me plenty of food for thought. The RNCM has been, and will continue to be, a fantastic place to be a composer.

It is also little surprise to me that much of my best music has been produced with the moral support of Maria Chybowska, who has left her mark as a performer on a third of the portfolio, and I am extremely lucky to have shared my experiences with her, both in music and in life.

Without the support of my parents, it is unlikely I would even have made it to doctoral level study and I am eternally grateful for their interest in everything musical I do, even if it sometimes means smiling along to a recording of my latest racket.

Special mentions also go to the performers and ensembles who have given dedicated performances of my music during the last three years: the RNCM New Ensemble and Brand New Orchestra, ACM Ensemble, Sounds of the Engine House, the Diverso Quartet, the Narremes Ensemble, Leanne Cody and conductors Mark Heron, Steffan Morris, Piero Lombardi, Carlos Agreda Arango, Jonathan Lo and Clark Rundell, the last of whom is owed particular thanks for his helpful suggestions during the rehearsals for *After a Nonexistent Painting*.

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Abstract

This thesis is given in the form of an exploratory commentary centred on my readings of theories of emotion in music which have directly informed compositional procedures. Rather than presenting a set of compositional techniques as supposed embodiments of certain theories of emotion in a compositional setting, this commentary charts developments in my own compositional thinking and practice which have arisen as a result of a personal engagement with these theories. My role as a musical listener is a key factor in this engagement: it allows me to provide evidence which may validate the theories as viable compositional informants and also allows me to reflect on the musical products of my engagements with the theories to inform further compositional action. The thesis begins by exploring my compositional motivations for, and usage of, linear processes in Chapter 2, before an exposition of a compositional scenario where these processes are nested to allow them to shape different structural levels in Chapter 3. The fourth chapter is concerned with a compositional application of Leonard Meyer's work on emotion in music which is centred on the concept of a musical expectation, before Chapter 5 explores alternatives to this model. Chapter 6 then considers my work composed in the wake of these theoretical engagements, and viewed in relation to them.

1. Introduction

Although the central focus of this commentary is on an engagement with theories of emotion in music, compositions which were written prior to and after this engagement have been included for discussion. This will allow for the examination of concepts which are prerequisite to my deployment of the theories and I will determine the extent to which these theories have been absorbed to deeper levels within my compositional thinking and practice.

Each motivating theory or area of literature will be reviewed, followed by an account of the compositional methodologies derived from the review which will in turn be reflected upon and suggest further theoretical concerns to motivate new compositional output. In this way, the thesis will present a chronological development of my compositional approach, which starts with the use of theoretical ideas prior to, and perhaps more primitive than, theories of emotion in music; followed by an engagement with these theories; finishing with a more liberal usage of techniques developed previously.

Both this thesis and the portfolio of compositions begin with a concern for the usage of linear musical processes, applied liberally at first (in *Unexpected Processes*) before adopting a more disciplined “nested” structuring enabling the processes to shape larger forms more directly (in the *Flute Concerto*). The central body of the thesis will then explore compositional strategies derived from aspects of Leonard Meyer’s work on emotion in music (applied in *Inhibited Tendencies* and *One Cliché After Another*) before considering alternative theories of musical emotion drawn from music psychology relating to affect induced as a result of emotional contagion (in *200 Requests for Empathy*) and visual imagery (in *After a Nonexistent Painting*). The final two pieces in the portfolio (the *String Quartet* and *Seven Syllables*), which were written without any predetermined theoretical ideas to explore but which still bear traces of the previous theoretical concerns, will then be analysed in light of prior technical developments.

My engagement with theories of emotion in music is not exhaustive and my methodologies are inextricably linked with my own experiences of listening to music together with aesthetic preferences. In light of this, I do not expect all listeners to react to my music in direct correlation with its construction. No claims are made for the validity of my compositional procedures as analytical tools appropriate for broader analyses of compositions within the portfolio. Nor do I view my methods as rigorous derivations of certain theories of emotion in music suitable for producing test pieces for scientific experiment, which is why this document is given in the form of an exploratory commentary rather than an exposition of compositional techniques aligning themselves more strongly with the theories which informed their generation. The elusive concepts that many of the theories of emotion deal with or imply, such as the notions of “cue abstraction”, “expectation” and “visual imagery”, have made the theories helpful in being sufficiently flexible for my creative use but too vague to form the basis of an objective methodology. For example, it is possible that a different composer, with a different idea of a musical expectation and what it meant to “inhibit” this

expectation could take the literature reviewed in Chapters 3 and 4, refashion it, then use it to produce a technique bearing no resemblance to mine: indeed, any concrete definition of an expectation applicable to contemporary classical music would be problematic given the plurality of styles in the 20th and 21st-centuries in this genre and the existence of music which parodies these styles in turn. In light of this, I would also not expect anyone to be able to deduce the underlying theories of emotion only from viewing my compositional procedures.

2. Linear Processes

Periodically throughout my compositional life, I have returned to Sibelius's *Symphony No. 7 in C Major*, Op. 105 as a point of reference by which I have been inspired, bewildered and at times, intimidated. Interestingly, and with the benefit of hindsight, I now find that the traces of many of my theoretical preoccupations which have been channelled into separate pieces within my portfolio can all be found within this single symphony of Sibelius, all in dialogue with each other.

At the time of writing *Unexpected Processes*, my interest in the Sibelius was due to the sense I gathered that the symphony was in constant motion, although I could never guess in what direction. Even in moments of apparent cadential resolution there seemed to be a sense of incompleteness, the sense that passages that seemed harmonically resolved still implied a larger projected trajectory. When harmonic platforms did reoccur, hinting at stability on higher formal levels, the changes to the gestural qualities of the material presented seemed to weaken the role of these platforms as stable reference points.

Edward Laufer attributes this disruption of stability to a hearing of the symphony as a rondo in ABACA form, but with a C section given by (Laufer, p. 353):

> …an entire scherzo movement…in the tonic key [which] creates an effect not of a contrasting C section within a vast rondo framework, but of a separate movement altogether — an effect altering the formal perception of the whole.

There seem to me further instances of sections which are simultaneously contrasts and recapitulations. For example, the trombone theme which first occurs in bar 60 is recapitulated first in shortened form in bar 107 near the beginning of an episode in a faster tempo, then again in bar 221 in the original tempo but with differing harmony (in the tonic minor):

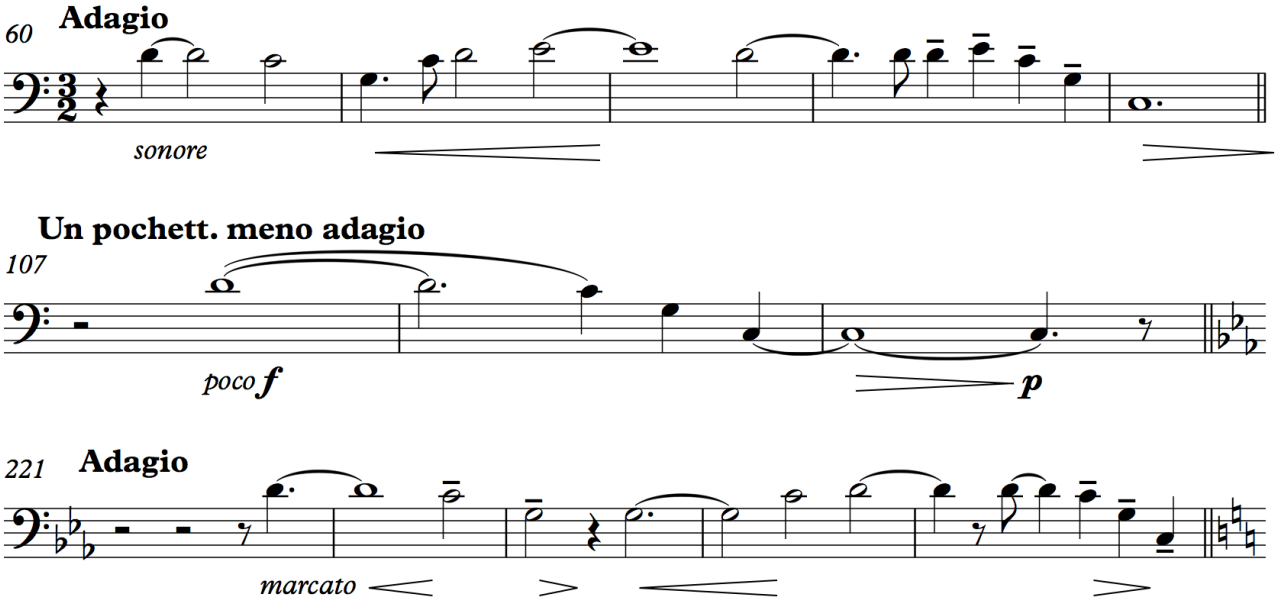

Figure 2.1: Recapitulations of the trombone theme in Sibelius's *Symphony No. 7 in C Major,* Op. 105

In addition, the symphony alternates throughout between sections consisting of sequences and those which stabilise thematic material, although the harmonic content and motifs which are used to characterise the material are constantly changed or subjected to recombination.

Such sectional relationships are very similar to the techniques applied by Morton Feldman in his later music to achieve "a disorientation of memory" (Feldman, p. 127), albeit that in Feldman's reductive approach to musical material, micro-variations may take on the role of the simultaneous contrasts and recapitulations mentioned in the light of the analysis by Laufer. As Feldman has stated in interview (p. 178):

> I am interested in music where the variation is so discrete. I would have the same thing come back again, but I would just add one note.

This formal disorientation may account for my sense that I could never guess in what direction the symphony was moving. However, reference to the stasis of late Feldman ought to make clear that disorientation does not necessarily imply the feeling of motion.

A starting assumption for Candace Brower's *A Cognitive Theory of Musical Meaning* is that "we experience motion as following pathways leading to goals" (Brower, p. 327) and implicit in this statement is the idea of a projected, but not yet *realised* goal. Eugene Narmour's implication-realisation model for melodic expectation (Narmour 1977, pp. 122-166) builds on Schenkerian analysis, presenting a model for how local directional relationships between melodic fragments set up projected expectations for the listener concerning how the material might develop during the course of the music, in other words, what goal state the material might reach.

Studies have also been carried out to verify the role of expectancy in rhythmic and metric structure[1] and Narmour himself has postulated the extension of this theory to further musical dimensions (Narmour 2011, p. 14).

Sections of the Sibelius symphony could act as case studies for Narmour's theory: as Laufer documents in his analysis, save for the use of a fourth interval and a "turn" figure, the motivic material for the entire symphony is derived from scales (Laufer, p. 358), themselves born of the simplest directional pitch relationships, and linear harmonic developments of phrases such as below are extremely common throughout the work:

[1] See Pearce & Wiggins, p. 378, for example.

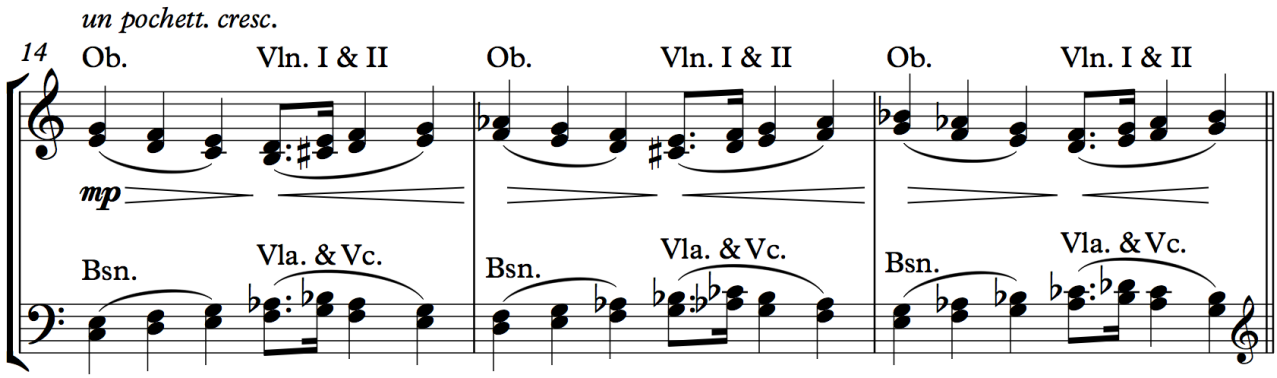

Figure 2.2: Linear development in bars 14-16 in Sibelius's *Symphony No. 7 in C Major,* Op. 105

These linear operations applied to simple musical cells, referred to henceforth as linear processes, which permeate the symphony gave me motivation to use similar processes as the generators of a composition to give a feeling of motion to the music. In addition, in keeping with Narmour's postulation of the extension of his theory to other musical dimensions than pitch, I decided to use linear processes acting on other properties of musical units than pitch such as rhythm, dynamics and texture, as will become apparent in my exposition of the construction of the opening bars of *Unexpected Processes* to follow.

It may be worth clarifying here that by linear processes, I mean the literal application of linear, usually stepwise, operations on certain parameters of a musical cell, which will exclude broader conceptions of the term such as the continuation of a melodic line, a process of cadential resolution, or a more general musical unfolding starting with one material type and finishing with another by means other than using one of the linear processes described. Under my definition, no preference is given to the time scale over which the processes unfold: for example, musical objects such as a descending chromatic scale figure or a diminuendo on a held note qualify as linear processes just as much as, say, the gradual reduction in tempo in Aldo Clementi's *Madrigale* which occurs over several minutes.

Of course, there is much 20th and 21st-century music which utilises linear processes to entirely different ends to those inherent within the Sibelius. For example, in the early process-driven music of Steve Reich, the processes *are* the ends, as the title of his 1968 manifesto *Music as a Gradual Process* might suggest. Bryn Harrison notes that in his own music (Harrison, p. 16):

> There is no attempt to conceal the pitch material or subvert the processes being used. To quote the minimalist dictum: 'what you see is what you see'.

Works such as James Tenney's *Having Never Written a Note for Percussion* and *Arbor Vitae*, Alvin Lucier's *I Am Sitting In A Room*, many of Conlon Nancarrow's *Studies for Player Piano* and Aldo Clementi's *Madrigale* amongst many others, consist of one or a small number of clearly audible linear processes which operate throughout the works' durations, which are clearly intended as of interest in their own right, in contrast to my own reasons for utilising linear processes.

However, typically for these composers, their music constructed by linear processes does not always result in a linear form. As Epstein notes of Reich's *Piano Phase*: "while the process is continuous, our perception of it is not. The listener is presented with a rich array of possibilities out of which he/she may construct an experience of the piece." (Epstein, p. 497). It was thus important that the processes utilised in my composition were perceived *as linear* and not simply amenable to *description* as linear processes.

The perception of linear processes as such is inextricably linked to ideas of linear temporality. Whilst it may be a truism that all music progresses linearly in time, a discussion surrounding the temporality of a given work may come to different conclusions. As Monelle notes in his essay *The Temporal Image* (Monelle, pp. 81-2):

> Natural or "objective" time is a condition of life…It is continuous and irreversible…It is an object of cognition; it is "known" rather than lived…If we adopt "temporality" as the term for cultural time, then we are obliged to make a further distinction. Sign systems may proceed in time; however, it is not necessarily the case that the levels of content and expression acknowledge the same temporality, or that pertinent juncture occurs correspondingly on the two levels.

In the same article, Monelle makes a useful distinction between syntactic and semantic temporality, giving the example that "sometimes features of starting, progressing, closing, articulating in successive phrases are not significative of any such details on the semantic level, although they are manifested within the perceived temporality of syntax." (p. 83) Monelle claims that these two categories have often been confused in music theory literature, levelling criticisms in particular at Kramer and Epstein. Kramer's definition of linear temporality in *The Time of Music* as "the determination of some characteristic(s) of music in accordance with implications that arise from earlier events of the piece" (Kramer, p. 20) reinforces a generalisation of Narmour's Implication-Realisation model, although his discussions of examples drawn from both tonal and post-tonal music often show a bias towards harmonic processes without further enquiries of pieces which he deems to exhibit linearity through non-pitch processes.[2] As a consequence, his analyses of musical material only in terms of pitch may have led him to ignore emergent topical associations and thus confuse semantics with syntactics.

For my own purposes, although ideas of semantic metaphor may emerge as the thesis progresses, my primary concern will be with syntax for reasons related to my personal listening history: these will be outlined at the beginning of Chapter 4.

An exposition of the construction of the first two bars of *Unexpected Processes*, given below, will provide a case study for the way in which the processes might determine the piece's flow locally, at least on paper.

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[2] See for example Kramer, p. 38-9

The piece starts with a short, punctuated C-C# cell in the flute shadowed at a slower rhythmic speed and lower dynamic by the clarinet. The two lines develop in parallel: the top note of the flute cell moves upwards in semitones (reaching E at the beginning of bar 2) whilst the bottom note of the cell moves downwards by increasing intervals (C-B-Bb-A-G-F-D). The durations of the notes also increase (demisemiquavers, to triplet-semiquavers, finishing with regular semiquavers) whilst preserving a quaver pulse, and the line is gradually passed from the clarinet to the oboe. In addition, the number of notes in the cell (clarified by the written articulation and dynamic profiles) is increased from two through to five at the start of bar 2, whilst the pitches remain in the pitch field defined by the movements of the original top note and bottom note of the cell. Meanwhile, the durations of notes in the clarinet line decrease together with a reduction in the pitch field from C-C#-D (which resulted from upward semitone movement) to C#-D to D only in bar 2, where the maximum rhythmic speed reached on one note is represented by a timbral trill.

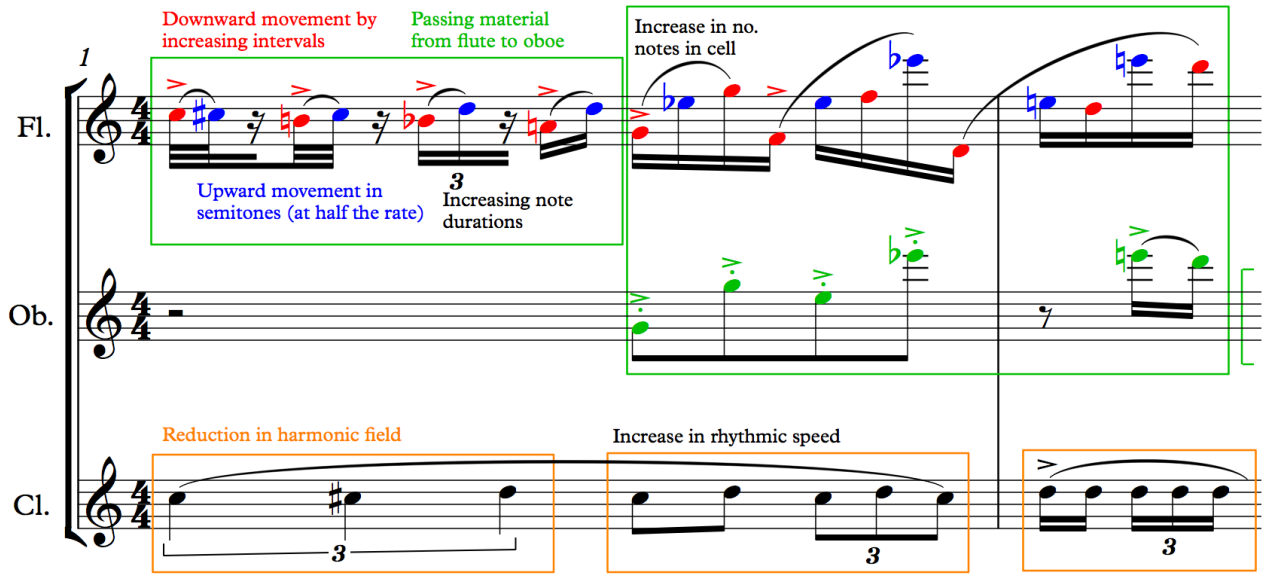

Figure 2.3: Exposition of linear processes used in bar 1 of *Unexpected Processes*

The two lines continue to develop separately in bar 2, with a temporary tangent provided by the flute's top D, continuing the movement upwards by way of octave displacements which started in bar 1. The oboe expands the E-D cell (previously presented in the top two octaves by the flute) downwards by the same interval of a tone to E-D-C-Bb by the end of the bar. Meanwhile, the clarinet's timbral trill is gradually morphed into a vibraphone tremolo, whose resonance is then gradually removed by the release of the player's pedal.

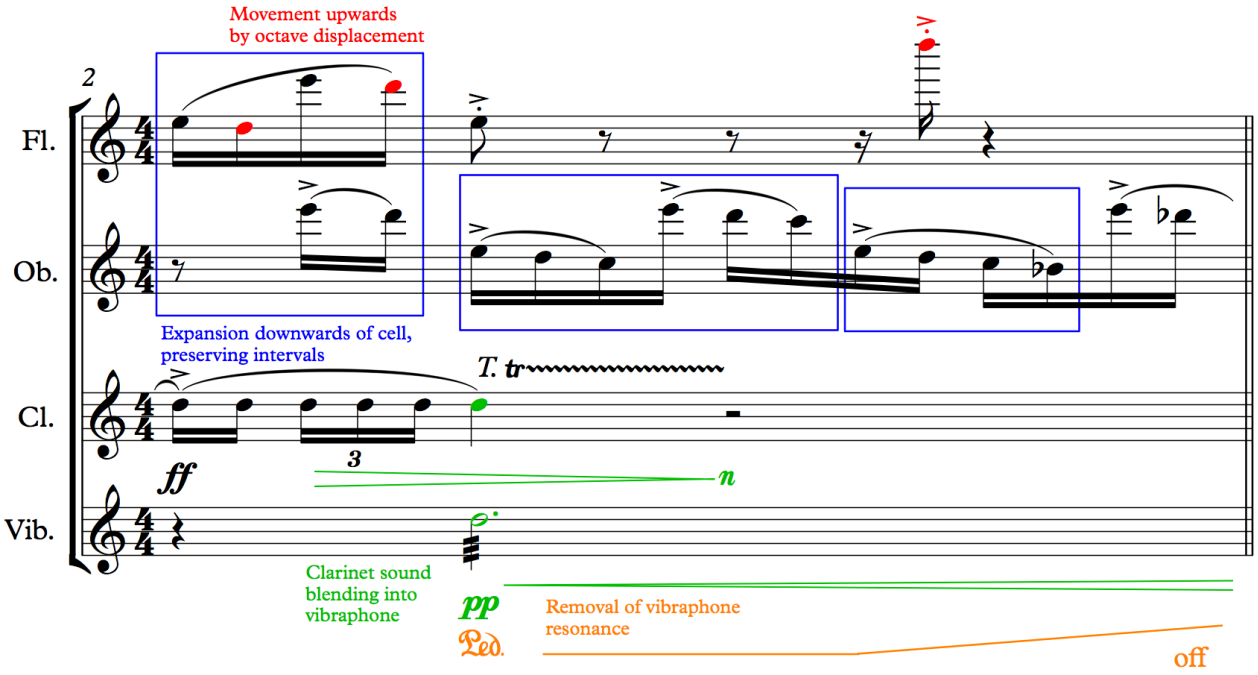

Figure 2.4: Exposition of linear processes used in bar 2 of *Unexpected Processes*

What may be apparent from comparing this construction to its sonic result is the way in which the application of continuous processes has led to highly discontinuous music. Junctures between the termination of old processes and the commencement of new ones may be partly responsible for this; for example, the termination of the processes concerning the crescendo in the clarinet in the first bar, the reduction of its C-C#-D harmonic field to only the pitch D and the gradual movement of the flute material onto the oboe part coincide with the commencement of new processes at the beginning of bar 2: namely, the written-out accelerando in the clarinet and the extension downwards in pitch of the E-D cell in the oboe. If each of these processes are clearly audible, then their common juncture at the beginning of bar 2 might serve to demarcate a new musical unit. In addition, this demarcation might be reinforced by my treatment of the bottom register which is introduced by the flute towards the end of bar 1 but neglected by the oboe in bar 2: a compositional decision which has little to do with my use of processes.

Apart from the conscious application of linear processes such as those detailed above, no other governing systems were used in the composition of *Unexpected Processes*, and perhaps these artificially introduced discontinuities were a subconscious acknowledgement of the discontinuities introduced by terminating one process and beginning another. As the title of the piece suggests, the introduction of processes after those which begin the work are always “unexpected”.

There are processes that run at deeper structural levels within the piece, although they are seldom used as definitively as those previously described. To give one example, there is a sequence of pitch platforms, or rather, sections where selected pitch classes are repeated more often than others, which begins on D in bars 2-18, then moves to B in bars 19-23, to G# in bars 28-34, F# in bars 35-36, E in bar 37, Eb in bars 38-39, D in bars 40-41, D quarter-flat in bar 42 to Db in bar 43,

a sequence which moves downwards in pitch by decreasing intervals. This process, as with others in the piece which run over longer time periods, is not a literal transformation of material: within the constraints this process imposes, material from earlier in the work is restated and subjected to further linear processes (which *are* definitive) without any planned methodology concerning the choices of processes or material to which they are applied. However, each step of the process, as with other longer-running processes yet to occur at this point in the music, is given its own distinct ensemble texture by selecting distinct sets of material and transformative processes to be utilised within each, setting up perceptual discontinuities between steps in a manner analogous to the first two bars.

Although *Unexpected Processes* was composed almost entirely using what I call linear processes, questions remain surrounding the extent to which these processes are likely to be perceived and the feeling of motion exacted in turn.

In my experience of listening to music, in order for linear processes such as those within my composition and the symphony by Sibelius to have a significant formal impact, strong musical contrasts must be avoided[3]. Richard Glover makes a similar point when reflecting upon a listening of James Tenney's *Having Never Written a Note for Percussion* (Glover, p. 19):

> My own enjoyment of listening to [it]…does not wane once it is clear that the piece is built solely from a simple arc form; rather, this allows me to appreciate the transforming densities of, for instance, partials and dynamics from the single tremolando process.

Returning to the Sibelius symphony, its motivic unity has already been mentioned and its deployment of rhythm is certainly pre-20th-century with regular pulses and a sense of meter, albeit variable, operating throughout the work. Obviously the symphony consists of tonal harmony, itself a type of reduction as are the approaches to motif and rhythm, so it is perhaps for these reasons that I hear the linear "processes" at work in the symphony as impacting on my perception of it.

In contrast, I have already highlighted potential structural discontinuities in *Unexpected Processes* on a local level, and coupled with passages that exhibit many processes at work simultaneously; these may obscure the micro-processes at work. Moreover, on the larger formal scale the piece finishes with a section derived from a quotation from the "surprise" *Symphony No. 94 in G Major*, Hob. I:94 of Haydn (from bar 78 to the end) which might provide such a semantic contrast to the previous music that any musical argument concerning "abstract" formal processes is lost. Even if many of the lower-level processes had shaped the music significantly up to this point, this musical event may give them little hope for impacting on the piece as a whole.

Even though it is doubtful whether these processes significantly shape my piece's perceived architecture, to me the piece does retain an overall "directed linearity" in the sense of Kramer. On

[3] This will be an important point for later explorations.

listening to *Unexpected Processes*, I perceive the first half of the piece as an alternation between sections of faster tempi and greater activity and those slower and more static, such as in bars 1-8 followed by bars 9-27 and then bars 28-41 followed by 42-51. The alternation is thus set up as a stable pattern, which becomes liquidated in the subsequent music, before the irreverent Haydn quotation dispels any expectations that the pattern might return: a definite non-conclusion.[4]

However, rather than abandoning a process-driven discourse in favour of more general sectional organisations suggested by the brief analysis above, I subsequently focused my compositional concerns on allowing these linear processes to shape the music over larger time scales. I also hoped to address these concerns without adopting the reductive approach to form inherent in the music of the experimental composers mentioned previously.

[4] Thus I perceive the piece's form as pre-empting the templates derived from the engagement with the work of Meyer to follow.

3. Nested Processes

Clearly a key matter raised in the concluding discussions of the previous chapter is how material and the micro-structuring of material can impact on musical perception over larger time periods or generate larger formal structures. Luckily there is a considerable amount of literature that has explored this relationship in usefully general terminology for my composition needs.

When talking about an experience of listening to a given piece of music, I find it difficult to avoid descriptions of certain *sections* of the music (of whatever perceived size), how those sections *changed* or how they related to other sections during the piece's progression. Moreover, as Lefkowitz and Taavola state as an opening to a discussion of "segmentation" in music (Lefkowitz & Taavola, p. 171):

> Segmentation — the process of parsing a composition into meaningful parts — lies at the heart of many music-theoretic activities. Given the fact that the very word "analysis" means the division of the whole into its constituent parts, segmentation is intrinsic — implicitly or explicitly — to many analytic endeavors.

The mental representation of music in discrete terms is believed by music psychologists to be a fundamental strategy of the human mind to reduce computational overload. The same article goes on to argue (p. 181):

> Many studies have shown that without a method of chunking, it is almost impossible to hold in short-term memory more than seven elements, and the fewer elements there are the stronger the memory of them will be…if presented with a group of six or more notes, listeners are likely to divide them into two or more segmentational groups, while they are likely to lump together single notes or pairs of notes with preceding or following notes to form larger groups.

In an article entitled *Temporal Gestalt Perception in Music*, upon which the article by Lefkowitz and Taavola is based, Tenney and Polansky offer a primitive algorithm for precisely how this segmentation might be carried out, based on Gestalt principles of "proximity" and "similarity" and using interval and duration as parameters, whereby larger intervals or durations surrounded by smaller ones imply segmentational boundaries. The segments generated then become musical units which are further grouped together or separated based on similar procedures applied to mean intervals and mean durations. Bob Snyder similarly places emphasis on discontinuity as the generator of such boundaries in *Music and Memory* (Snyder, p. 33).

Irène Deliège takes this work further, offering a more general explanation of how this chunking transcends to larger formal representations with the notion of a musical "cue" (Deliège, pp. 237-8):

> A cue is a salient element that is prominent at the musical surface…a cue generates different cognitive strategies by virtue of the very fact that it is 'emergent' — a property that confers upon it, cognitively speaking, a clearer definition with respect to the rest of the musical environment…As soon as it has been abstracted, the cue plays an active role in more than one aspect of the listening process. In the first place, it has attracted the listener's attention and thus becomes all the more effectively fixed in long-term memory; but in conjunction with the storage mechanism, it 'summarizes' the sequences from which it arose into a succinct representation, a sort of label, that reduces the memory load required to internalize the whole structure…The cue therefore provides us with a basic point of reference for the comparisons between musical structures that occur throughout the listening process.

This "salient element" is analogous to my *description* of a given section of heard music. In the context of a discussion surrounding linear processes, a suitable criterion for a linear process applied literally to a section of musical material to be heard *as such* might be that the application of the process in question must constitute a linear development of the *abstracted cue* of the starting material.

For my own composition this hinted at an iterative, or hierarchical, application of linear processes, summarised as the following algorithm applied to a choice of starting material "M" with abstracted cue "A":

1. Apply a linear process to M, such that the application of the process constitutes a linear development of A;
2. Let the new M be *all the music generated thus far*, including the starting material;
3. Let the new A be the abstracted cue of M;
4. Go back to 1.

A formalisation of my process of cue abstraction as an algorithm would be a considerable undertaking, and if it were even possible to deduce such an algorithm, its derivation would be worthy of a thesis in its own right. In any case, I have felt that such an act would divorce me from the process of "hearing" my own notated material internally, absorbing it and using that experience as an informant for further compositional action. Inherent in the cycle detailed above is the opportunity to assess *all that has gone before* in the composition in question as a means of determining how best to then proceed, even if "procedure" in this context is using strict linear processes intended to produce the specific effect of motion.[5]

This method of composition was used to produce the *Flute Concerto* in the portfolio. In this piece processes consisting of only three steps were used for concision, since the interest here was not in the processes themselves, but their effect. Three steps were also deemed the minimum number

[5] This is a further instance of distancing myself from an experimental aesthetic: an early Steve Reich or James Tenney would let the process run without intervention by the composer.

for the effect to register, with the first two steps setting up the expectation of motion and third presenting the “realisation” in the context of Narmour’s implication-realisation model described in the previous chapter.

However, on producing sketches using this compositional procedure (not included in the portfolio), I felt that more was needed to demarcate the ends of processes, or rather, to nullify the expectation that *they should continue*.

What I was seeking was a musical object to play a role similar to that of the cadence in tonal music. Oxford Music Online defines a cadence as “the conclusion to a phrase, movement or piece based on a recognizable melodic formula, harmonic progression or dissonance resolution; the formula on which such a conclusion is based” (Rockstro et al, 2013), relating this definition to examples in tonal music between the 16th and 19th-centuries. In an article arguing for a refreshed definition of the word “cadence” in the classical sense, Caplin lists the following as indicative (Caplin, p. 56):

1. Cadence effects formal closure at a limited number of levels of musical structure.
2. The harmonic content of the cadence — *the cadential progression* — is highly constrained.
3. *Cadential function* embraces the time-span from the beginning of the cadential progression to its end – the *cadential arrival*.
4. Passages of *cadential content* do not always function as syntactical cadences.
5. Cadential function must be distinguished from *postcadential function*, which embraces the music that follows the cadential arrival (and appears prior to a new beginning).
6. Cadential arrival represents a formal *end*, not a rhythmic *stop*.
7. The appropriate linguistic analogy for cadence is syntactical closure, not the external, written signs of *punctuation*.
8. *Cadential strength* can be distinguished as syntactical or rhetorical, the former being the one aspect essential for form-functional expression.

The emphasis here is clearly on the cadence’s syntactical function, with rhetorical elements being secondary. No. 4 may seem at first contradictory by suggesting that one could label passages as serving a cadence without the cadence itself adhering to a syntactical definition (presumably harmonic in the context of tonal music) of a cadence. However, this may reinforce the idea of a cadential function (of 3.) in a generalised sense, operating not necessary harmonically, but perhaps texturally, rhythmically or dynamically for example, without resorting necessarily to rhetorical means.

This generalised notion is reinforced by Ashforth’s survey of cadential functions in the music of Schoenberg, where a definition of cadence is redefined as “the movement toward and ultimate definition of some goal of momentary or final conclusion.” (Ashforth, p. 195) He goes on to note in the same article that “most cadential means involve a change, gradual or abrupt, in one or more musical dimensions” (p. 196).

In the context of my process-driven music, the suggestion of a “cadential progression” in no. 1 together with the last quote given above presented to me the idea that for a given process

consisting of three steps, a secondary process could run over the second step to prepare for the third, as illustrated in the graphic example below:

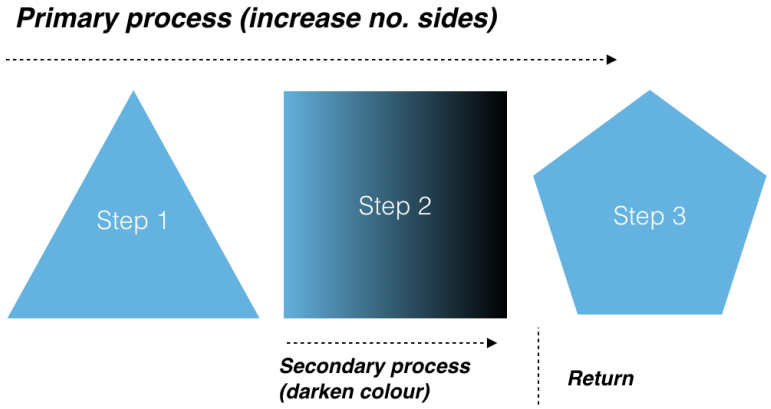

Figure 3.1: Primary and secondary processes

The sudden return of this secondary process at the beginning the third step of the primary process would help to demarcate the primary process's final step as required.

In a similar manner to the previous analysis of *Unexpected Processes*, an exposition of the construction of the opening bars up to letter A in the score (or bar 19) of the *Flute Concerto* will be given for critical review.

The construction can be summarised by the following table and music examples, with the primary processes "nested" using the procedure described in the algorithm overleaf and each accompanied by a corresponding secondary process which acts over the second step of the corresponding primary process. Note that most primary and secondary processes can be described as several processes employed in synchrony: the intent here being to produce clear segmentations and formalised the processual effects to reinforce each other.

Structural Level	Bars	Primary process	Secondary process
1	Step 1: bar 1, beats 1-2; Step 2: bar 1, beat 3 to bar 2, beat 1; Step 3: bar 2, beats 2-3.	Thickening the orchestration of the opening solo flute E by adding the orchestral flutes.	Timbral mellowing of the orchestration, passing the material from flute to cello harmonics to clarinet.
2	Step 1: bars 1-2; Step 2: bars 3-4; Step 3: bars 5-6.	Thinning the orchestration to a solo and mellowing the timbre to that of the clarinet.	Increase in dynamics from pp to mp.
3	Step 1: bars 1-6; Step 2: bars 7-12; Step 3: bars 13-18.	Increase in tempo of the non-solo-clarinet sections to crotchet = 144 whilst compressing their length from 4 bars to 2, lengthening the clarinet solo note from 2 bars to 4 bars.	Increasing the dynamics of the non-solo-clarinet section to ff, thickening the orchestration to include tutti violins, celli and trumpets.

Figure 3.2: Table of primary and secondary processes used in bars 1-18 of *Flute Concerto*

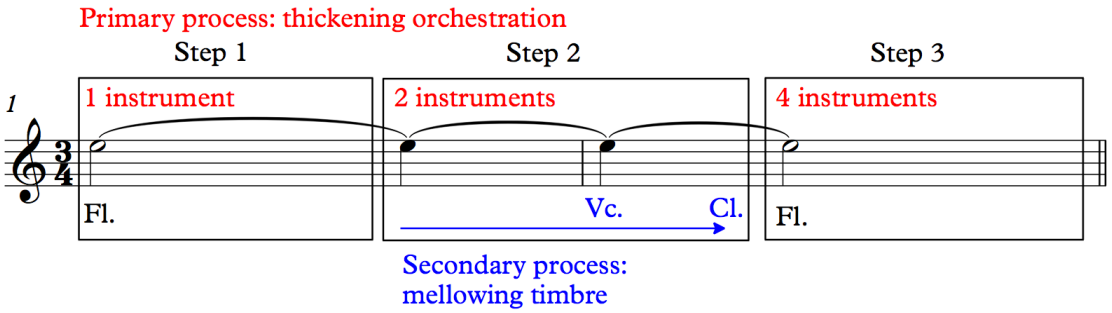

Figure 3.3: Musical example of the construction of the first structural level

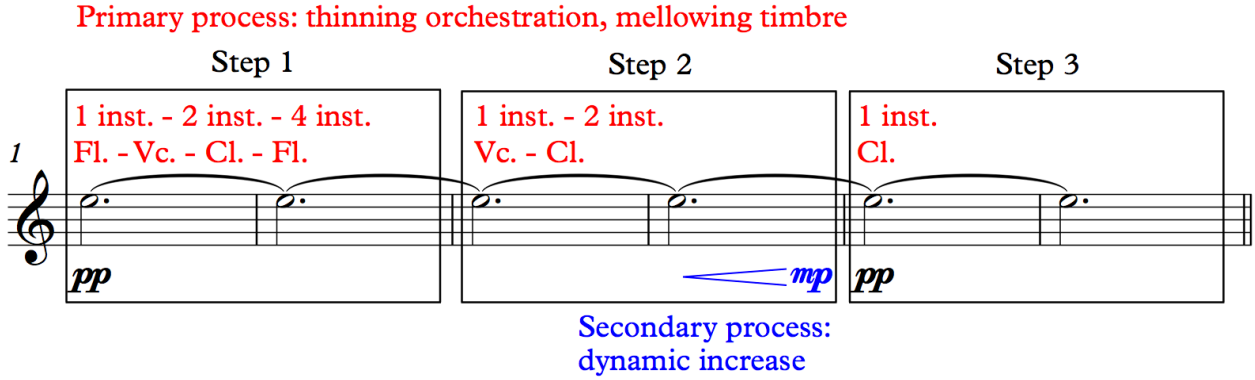

Figure 3.4: Musical example of the construction of the second structural level

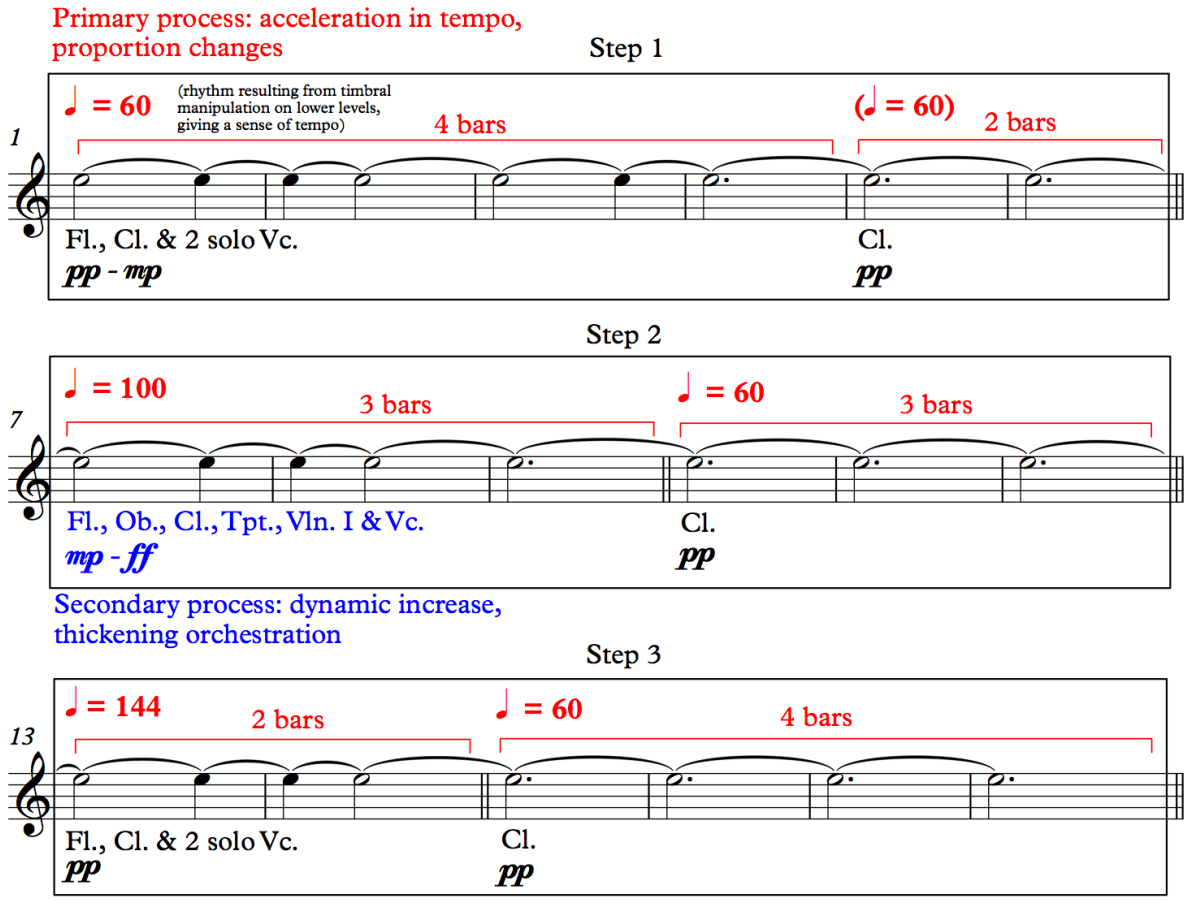

Figure 3.5: Musical example of the construction of the third structural level

To my ears, the primary processes which shape these opening bars, and also those that follow, which shape the rest of the *Flute Concerto*, have the same effect that I intended when conceiving the piece theoretically. However, what was an unexpected (or perhaps just unnoticed) consequence of the usage of the secondary processes was the additional contours of *tension and release* that they seem to provide.

As Morwaread Farbood admits in his proposal for *A Parametric, Temporal Model of Musical Tension* (Farbood, p. 387):

> The phenomenon of tension is evident to listeners and is relatively easy to define in informal, qualitative terms; for example, increasing tension can be described as a feeling of rising intensity or impending climax, while decreasing tension can be described as a feeling of relaxation or resolution. However, formalising and quantifying such a description is a difficult problem.

However, Farbood goes on to list general factors which have been argued to induce feelings of tension such as loudness, timbre, pitch register and also those which concern time such as *expectation* (p. 388).

In the sections of the *Flute Concerto* where I experience the most tension, namely the second steps of each primary process (over which the secondary processes operate) with the peaks in tension being just before the third steps, it seems many of the above factors are at work. With reference to the opening section whose construction has been given, bars 7-9, which are covered by the music generated by the third secondary process, are certainly louder and shriller in timbre than the surrounding music.

However, there are problems with attributing tension solely to atemporal surface aspects of material such as register, dynamics and timbre. For example, if bars 7-9 were repeated several times, it is unlikely that any tension impacted on me by the first presentation would survive until, say, the fifth or sixth[6]. As music psychologist David Huron notes, “continued repetition ultimately leads to boredom or habituation” (Huron, p. 367).

What might provide a more convincing explanation for my affectual experience of these bars of the *Flute Concerto* is the role of the latter factor mentioned by Farbood: *expectation*. A review of this concept will provide the necessary tools for such an explanation.

Elizabeth Margulis offers an eloquent motivation for the study of musical expectation in an article dealing with melodic expectation in tonal music (Margulis, p. 665):

[6] What might happen after many more repetitions, however, will be discussed in a later chapter.

> As a candidate for a mechanism of affect, expectation possesses several advantages. The phenomenon is known to be a basic strategy of the human mind; it underlies the ability to bring past experience to bear on the future, the ability to prevent computational overload by constraining the number of outcomes worthy of consideration, the ability to efficiently direct attention and mental resources…The expectational theory of musical affect gains plausibility by relying on a common cognitive process. The theory also benefits from its focus on the active, real-time experience of listening…a theory built around expectancy absorbs the reality of temporal experience into its foundation, preserving the distinction between past events, which have become fact, and future events, which remain uncertain.

The most comprehensive writing on expectation, dealt with in general terms and which is used as a starting point for the book on melodic expectation by Narmour (Narmour 1977) is that of Leonard Meyer, whose 1956 book *Emotion and Meaning in Music* still influences music theory and music psychology today. Indeed David Huron's *Sweet Anticipation* is a book which he admits is designed to "fill in the details" (Huron, p. 3) of Meyer's work in light of considerable experimental and theoretical knowledge accumulated since Meyer's book was published.

The central thesis of the book, which is a reformulation of J. T. MacCurdy's reading of John Dewey's *The Conflict Theory of Emotions* is as follows (Meyer, p. 31):

> Affect…is aroused when an expectation — a tendency to respond — activated by the musical stimulus situation, is temporarily inhibited or permanently blocked.

The rest of the book then explores what might constitute an expectation within various musical styles drawn from Western classical music, African drumming and traditional Javanese, Japanese, and Chinese musics amongst others and how musicians from these styles have subverted these expectations to emotive effect. Gestalt principles from music psychology, in particular the law of good continuation, are also used as a vehicle to examine more subtle expectations set up and violated in musical examples drawn from the Western canon.

As Meyer is often at pains to emphasise, expectations, whilst arguably a function of our inbuilt perceptive mechanisms, are also heavily dependent on learned experience and in this way the theory quoted above gains additional power by leaving the idea of an expectation to be defined personally by any individual.

Unfortunately, it is the ignorance of these emphases that has led the book often to be misrepresented, as a few examples may show. Peter Kivy, in his essay on Meyer's work entitled *Leonard Meyer's sonata*, declares *Emotion and Meaning in Music* "a substantial contribution to the "philosophy of absolute music"" (Kivy, p. 214), despite the sensitivity to expectations inherent in music drawn from different cultures. Moreover, the very first musical example in the book concerns the expected resolution of a IIb-V-I cadence which is an expectation defined entirely by culture. Charles Ames, whilst reflecting on James Tenney's work on temporal Gestalt perception, is critical both of Meyer's theoretical premises drawn from psychology and of his adaptation of Gestalt

principles (Ames, p. 455). He describes his conclusions generally as “tenuous” (p. 457); however, whatever the validity of his criticisms, all conclusions in music theory are tenuous by their nature and Ames seems unaware of the assumptions regarding the absolutist perception of material inherent in the Tenney model, which is manifest in Tenney’s own non-rhetorical and minimalist approach to composition.

Even Biancorosso, who supports both the Meyer and David Huron’s *Sweet Anticipation*, admits that “it is the wholehearted adoption of an evolutionist approach, especially its recent incarnation as ‘Neural Darwinism’ that set Huron’s work apart from that of Meyer” (Biancorosso, p. 401); thus Huron’s description of his work as in the lineage of Meyer is itself a problematic one.

Emotion and Meaning in Music has attracted criticism and as a supposed theory to explain *all* affect induced in *all* musical listeners as a direct result of dynamical listening processes, like any theory, it is eventually found wanting. However, as later chapters will show, I do not believe Meyer’s theory to be the only explanation for how affects can be induced and my usage of the ideas at stake are as mere starting points for addressing certain compositional concerns. In this thesis I will apply Meyer’s thinking and the theories of those influenced by it not in general, but as a tool to probe my perception of specific phenomena and to inform specific compositional procedures motivated by the Meyer’s potency in accounting for many of my personal experiences of musical affect, even in contemporary classical music of which the book contains no examples.

Nevertheless, Malcolm Budd, who is a critic of *Emotion and Meaning in Music*, raises the issue that many of Meyer’s examples are concerned with the production of musical “tension”, which he does not consider to be a type of emotion (Budd, p. 160). However, this is merely a technicality, since at least up until 2012 there was “no commonly agreed-upon definition of emotion in any of the disciplines that study this phenomenon” (Mulligan & Scherer, p. 345) and in an article proposing a partial working definition of the concept defined according to a set of criteria, musical tension does in fact qualify as an emotion (p. 346). In any case, it is hoped that my own conceptions of musical emotion emerge implicitly throughout the discourse, which is why a definition of my own from the outset has not been deemed relevant.

With Meyer’s theory as an analytical tool, and without providing personal conceptions of expectations based on my own listening experiences just yet[7], I shall return to the excerpt from the *Flute Concerto*.

Throughout the first six bars, the music is predominantly quiet, and mellow in timbre, but with enough internal variation in instrumentation and rhythm such that the music has avoided becoming perceptually static and no expectation has been set up for change to occur. In addition, the passage is of sufficient perceptual length to set up the expectation for this quietness and timbral

[7] This will be done in the following chapter.

thinness to continue: one could divide the bars into two broader units consisting of bars 1-3 and 4-6, the first characterised by activity and the second by a clarinet held note, and within the first unit there could be further subdivisions made as a result of the processes previously described. In bars 7-9 however, the music becomes louder and shriller in timbre and this also makes the juncture with the clarinet held note in bars 10-12 more of a contrast, whereas in the previous music, I perceived no such discontinuities, setting up an expectation for the music to continue to be without any. These new events in the music represent violations of the expectations previously mentioned and hence musical tension is generated over this passage, which is then released in bar 13 with a return to material which I perceive as a variation of the opening bars given by fluctuations in tempo and bar lengths, and which has the same timbral and dynamic settings as the opening music: thus the expectations are finally realised, albeit after a delay.

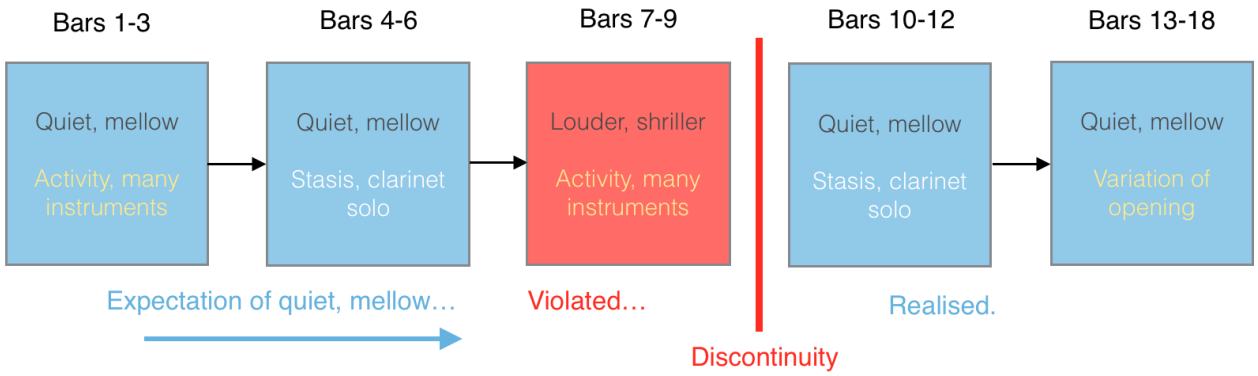

Figure 3.6: Meyer's principle for musical affect applied to bars 1-18 of *Flute Concerto*

Clearly the reference to "perceptual length" indicates that perceived proportions or durations are also important in forming expectations for me. For Bob Snyder (Snyder, p. 214):

> "Boring" time periods with little information are experienced as being long, but *remembered as shorter*. Conversely, because our attention is actively engaged in the events themselves, time periods filled with unusual, informative sequences of events, can seem to flow very rapidly while actually occurring, but are *remembered as longer*.

Epstein gives a simple example of this phenomenon from Brahms (Epstein, p. 144):

> Often the density of events in Brahms's scores is altered — increased per unit of time (beat), with the effect that the music seems to go more quickly. This increase is at times accomplished by steps, a passage moving, for example, from quarter-note beats to eighths, triplets, sixteenths within the quarter-note beat, resulting in a sense of accelerando even though the beat itself remains unchanged in duration.

Of course, there are more contemporary examples such as exemplified in Brian Ferneyhough's rhythmical explorations, where meter length and density are varied independently (Ferneyhough, p. 55). What is to be noted however, is that the concepts of "informative" or "boring" events, drawn from the "storage size" metaphor in Robert Ornstein's *On the Experience of Time*, are subjective ones, which extend beyond any considerations of rhythm, or even a more generalised structural

rhythm alone. The assumptions or implications of my formalist approach to the present analysis of the first bars of the *Flute Concerto* given above will also be explored at the beginning of the chapter to come.

Clearly, at the moment in my *Flute Concerto* excerpt when the “contrast” occurs, it is the *remembered* length of the preceding music which is crucial rather than the experienced length, which might explain my observation that I perceive bars 1-6 as being sufficiently *long*. I also noted previously that “enough internal variation” was present in these bars to avoid perceptual stasis, but of course *any perceived variation* will avoid perceptual stasis; to this end, note that two distinct units with the required properties of quietness and timbral thinness (i.e. one unit and a variation thereupon) are apparently sufficient to create the expectation that these properties should persist in the subsequent music, which will be a useful observation for “Template 1”, presented in the following chapter.

After writing the *Flute Concerto*, I realised that not only were aspects of my compositional technique already mirroring case studies within *Emotion and Meaning in Music*, but this theory of emotion could be used as an opportunity to broaden my compositional approach from a concern for a “feeling” of motion to a concern for the induction of affects in general by manipulating musical expectations. This line of thinking has generated a number of pieces, of which *Inhibited Tendencies* and *One Cliché After Another* are included in the portfolio.

4. Inhibited Tendencies

Every musical listener is likely to have a different set of ideas for what constitutes a musical expectation. In order to enable a manageable compositional technique to be derived from Meyer's principles, I have chosen to limit conceptions of musical expectations to those which are drawn from, and validated by, my own listening experiences. Meyer notes that these experiences in turn form a "preparatory set" (Meyer, p. 73), which is brought to any piece of music to which I might listen. I shall now explore these experiences as a way of arriving on a more concrete notion of an expectation for compositional use.

I have found that on listening to a piece of music, the qualities of the material initially presented strike me first, but as the piece unfolds, I concern myself more with the relationships between different materials, or how the materials develop. This is predicted by the probability model of Coons and Kraehenbuehl outlined by Huron whereby (Huron, p. 228):

> A listener would begin the listening experience with expectations reflecting broad or generalised probabilities arising from a lifetime of musical exposure. But as the musical piece progressed, the listener would tailor expectations that are engendered by events in the work itself.

Perhaps this has been also reinforced by exposure to 20th and 21st-century music which has appropriated past musical styles, styles which might bring their own individual expectations for continuation, but deployed several of them as musical units to be freely developed or contrasted in a single work. To give one example, the opening of *Snagglepuss* by John Zorn, from the album *Naked City* presents short, contrasting blocks of material which for me are strongly evocative of noise art, funk, free improvisation, a somewhat distorted baroque pastiche and blues, respectively. After the first few of these blocks are presented, I become acclimatised to the cognitive dissonance generated by the juxtaposition of different styles and the most salient aspect of the music up to this point becomes *these juxtapositions*, rather than what is *being juxtaposed*. This sets up the expectation that these contrasting blocks should continue, and the first moment of tension in the track arises after one minute in, when the opening block is recapitulated and developed over a 15 second period: both recapitulation and development are, for me, unexpected at this point.

Note that this observation mirrors the Haydn quotation in *Unexpected Processes* overriding any "abstract" process-driven discourse established previously, albeit stylistic change in *Snagglepuss* is the established norm whereas in *Unexpected Processes* it represents deviation from the norm. At stake here again is the notion of *cue abstraction*: for the introduction of material to be unexpected, it must be unexpected with reference to the cue abstracted from *all the material which came before*. In the context of the Zorn, the cue I abstract from the opening sections is that of "stylistic discontinuities" rather than what the styles were, and for *Unexpected Processes*, the cue abstracted is either "process driven discourse" or possibly the weaker "discontinuous blocks of material characterised by linear processes" rather than the effect of each process in isolation.

For me then, setting up expectations, delaying them and realising them (or not) during the course of a musical work thus depends on the cue abstracted from what music has gone before. Thus I was motivated to use the hierarchical approach to material organisation inherent in the *Flute Concerto*, but with the processes replaced by templates for tension, with or without release, derived from setting up and manipulating expectations.

For the sake of clarity, below is the relevant iterative process starting with material "M":

1. Extend M in some way such that an expectation E is set up for continuation;
2. Introduce material C such that E is inhibited;
3. Introduce material R such that E is then realised, or such that it is clear E will not be realised;
4. Let M be all the material up to this point;
5. Go back to 1.

Four general templates, to be applied to material in the process above, were used in *Inhibited Tendencies* and *One Cliché After Another* and they will now be reviewed with examples from these pieces.

4.1 Template 1

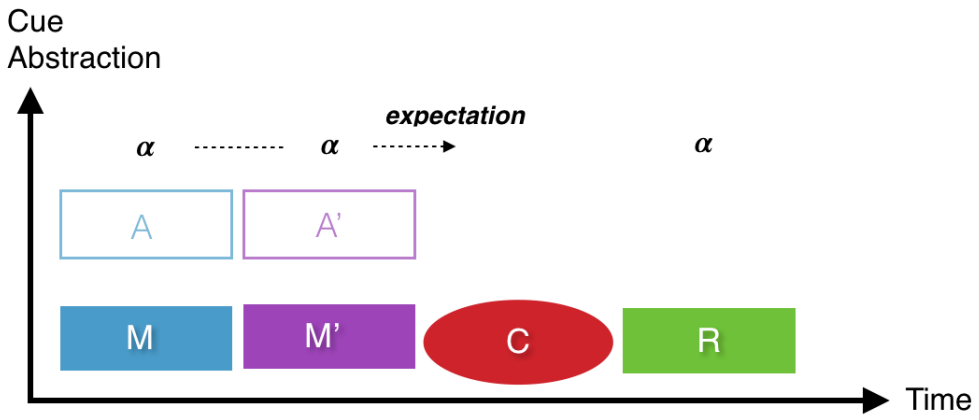

Figure 4.1.1: Template 1 used in *Inhibited Tendencies* and *One Cliché After Another*

In this template, M with cue A is followed by M' with cue A', such that A is similar but not identical to A'. Then A and A' have common properties, say α, and thus the expectation is set up that α should continue, by means of re-emphasis (but not exact repetition: see Template 3) Then the contrast C must have a contrasting cue to α, and the realisation R must have the cue α so that this expectation is delayed before a final realisation.

For me, to repeat M exactly in this context has very different consequences than presenting two units M and M' that are perceptually similar but nonidentical. Whatever the material that takes the place of M here is likely to have a clearly memorisable syntax inherited from lower level iterations of these templates[8], hence I am likely to perceive the repetition *as such*. In this case, teleologically, time is suspended for me with the repetition and in light of discussions surrounding the "storage size" metaphor for memory, the repetition of M will be redundant and so I may perceive two identical units as having the same duration as one; hence if M were exactly repeated in the template above, it would be as if M were stated only once and the contrast C would not violate any expectations since none were set up. As Bryn Harrison has noted, repetition is "capable of arresting any direct sense of development through time" (Harrison, p. 4).

This conclusion has also been arrived at through early experiments (not included in the portfolio) where exact repetition of M was used. In the worst cases where M appeared as particularly stable material, boredom also set in on the second presentation of M so that the contrast C came as a relief rather than a point of tension (see Template 3).

Note that this template is comparable to the highest-level structure which I perceived in *Unexpected Processes* at the end of the second chapter as well as to the example in the *Flute Concerto*. This structure also has parallels with the classical sentence, whereby an initial phrase is presented followed by a variation of this phrase before a liquidation of the previously stabilised motifs and a development of the harmony in the third section, finishing with a cadential resolution of some kind[9].

An example of the utilisation of this template is at the highest structural level of *One Cliché After Another*. Bars 1-16 are repeated several times and bars 17-29 have the same lower-level structural rhythm as 1-16, but with substituted musical units and processes operating on them: for example, the opening string chords are replaced by brass and the process of harmonic movement by a cycle of fifths is replaced by a process of increasing harmonic density. Bars 17-29 are then also repeated several times. This sets up the expectation E of repeated panels with a clearly defined structural rhythm.

Bars 30-72 then represent the contrasting section: the music is through-composed in opposition to the exact repetition of the previous sections, although still repetitious, and the overarching structure of this section is a binary form characterised by filigree violins and flutes followed by trombone wah-wahs, oboe multiphonics and Bartok pizzicati from the double bass, whereas the previous sections were more classically proportioned.

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[8] Each of these templates will consist of at most three different material types, and "the fewer elements there are, the stronger the memory of them will be" (Lefkowitz & Taavola, p. 181).

[9] See, for example Schoenberg, pp. 58-81

The expectation E is then realised in bars 73 until the end, when the structural rhythm and exact repetition stabilised previously makes a return.

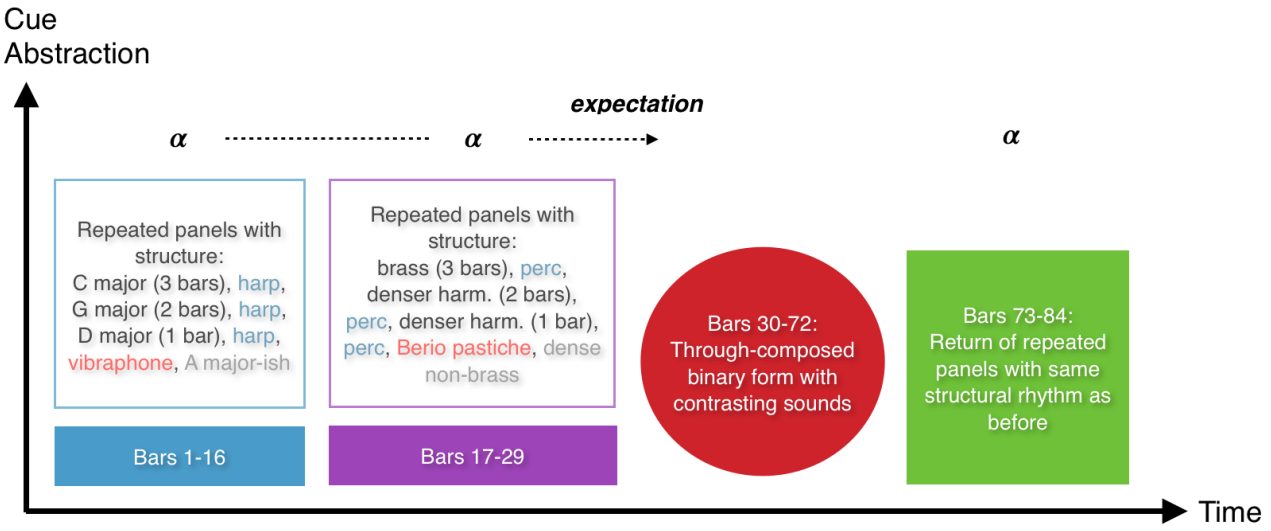

Figure 4.1.2: Example of Template 1 in *One Cliché After Another*

4.2 Template 2

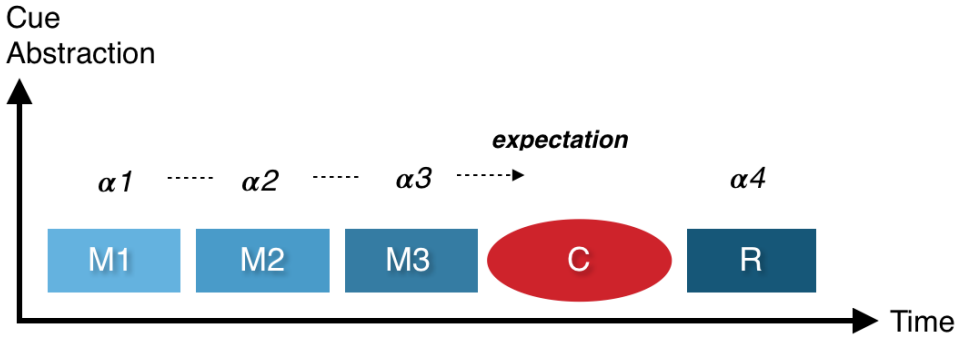

Figure 4.2.1: Template 2 used in *Inhibited Tendencies* and *One Cliché After Another*

In this template, M with cue α is transformed by a three-step linear process such that α is transformed linearly, setting up the expectation that this process should continue. C then has a contrasting cue and R has a cue that continues the transformation of α in some way.

This template is applied to the material in bars 1-6 of *One Cliché After Another*. Bars 1-6 can be divided into two units consisting of three chords based on C major (bars 1-3), and harp glissandi based on an Ab major scale (bars 4-6). Processes then act on both of these units in parallel: the string chords are reduced from three in number, to two, to one whilst the orchestration moves gradually from the strings to the winds and the dynamics are reduced from *f* to *mf* to *p*. Meanwhile, the range of the harp glissandi is reduced from three octaves to two to one and the number of beats taken for each glissando to be executed is reduced from three to two to one. The contrasting

section is that of the bowed vibraphone in bars 14-15, and the realisation in bar 16 completes the harmonic progression in fifths of the non-harp sections, but both the non-harp and harp sections are compressed into a single bar and trills are introduced in the winds.

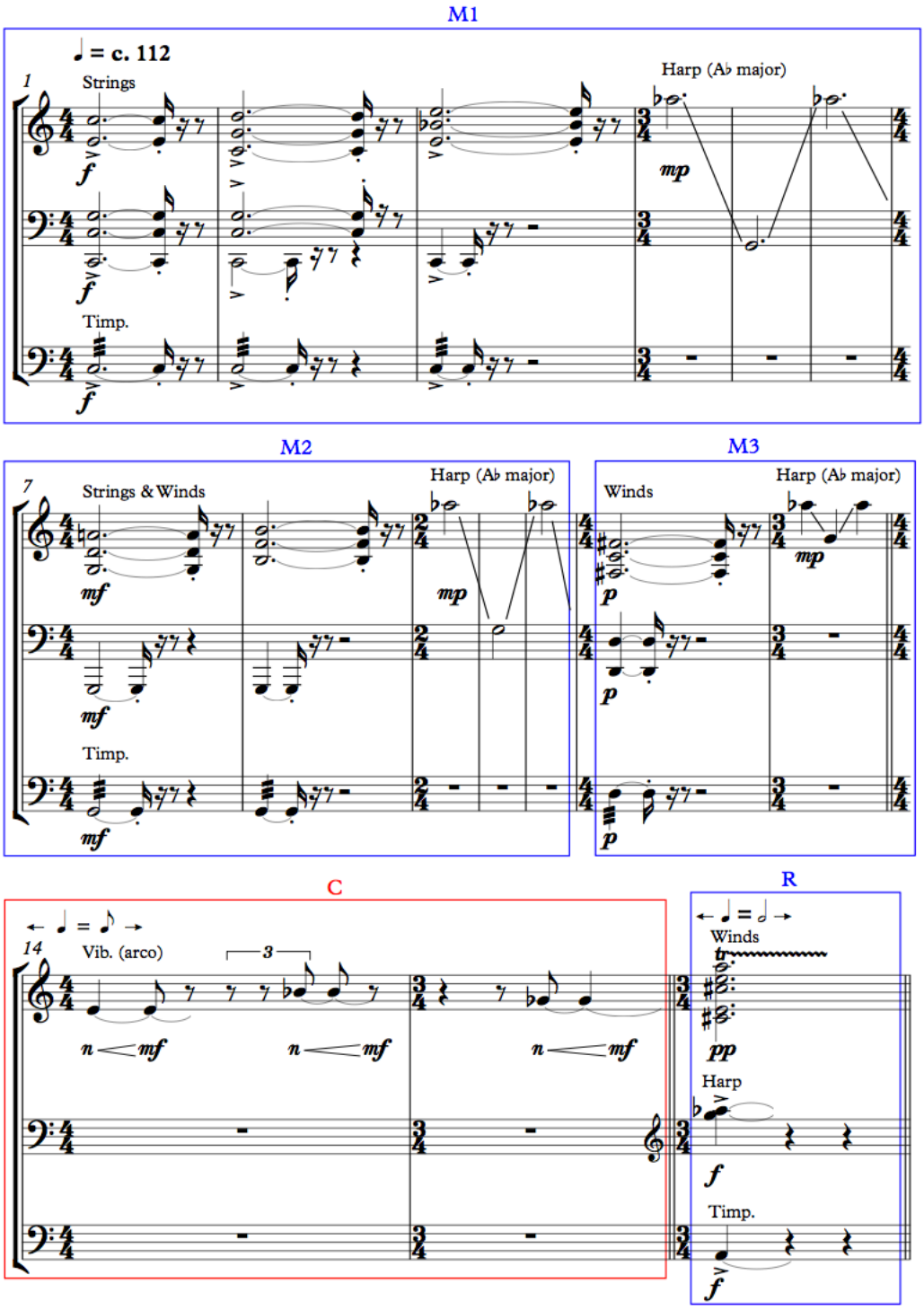

Figure 4.2.2: Reduction of bars 1-16 of *One Cliché After Another*

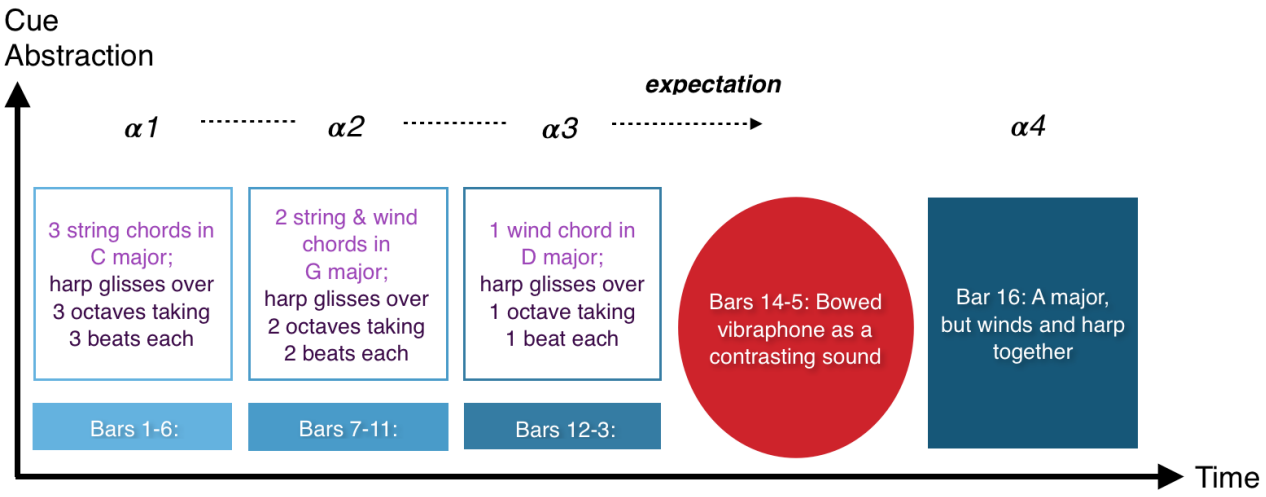

Figure 4.2.3: Example of Template 2 used in *One Cliché After Another*

For both this template and the previous one, the realisation may be omitted and the contrasting section extended, or it can represent a partial realisation in only some of the parameters which are relevant to the expectation, or it may be different material altogether; what is important is that expectations are perceived to be *concluded* in some way, since if these templates are to be "nested" hierarchically and expectations are unresolved then this will continue to affect subsequent music, and the next highest structural level, regardless of the compositional intent.

An example of this version of Template 1 is given by the highest structural level of *Inhibited Tendencies*, and an example of this version of Template 2 is the first six bars of *One Cliché After Another*.

4.3 Template 3

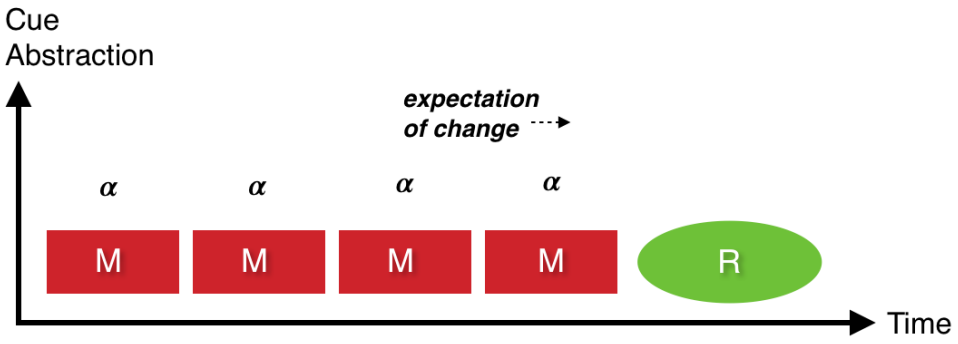

Figure 4.3: Template 3 used in *Inhibited Tendencies* and *One Cliché After Another*

In this and the following template, the play is on the expectation that change should occur. When listening to repetitious music, or music of "low information" in the sense of Snyder,[10] I undergo an affective transformation, similar albeit over fewer repetitions, to what Stewart Lee describes when

[10] See Snyder, p. 236.

passing signs to the town of Shilbottle by car which have been edited by graffiti (Lee, from 13’58’’, my transcription):

> I’d drive past the first Shitbottle sign, I’d think “that’s funny”; the second Shitbottle sign, I’d be really laughing; the third Shitbottle sign, I’d be in hysterics; by the fourth Shitbottle sign, I was “take-it-or-leave-it”; the fifth Shitbottle sign was irritating me; the sixth Shitbottle sign, I was infuriated by the audacity of the people continuing with this idea; the seventh Shitbottle sign, I started to find it funny again; the eighth Shitbottle sign, I was really laughing; the ninth Shitbottle sign, I was in hysterics; by the tenth Shitbottle sign, I used to have to pull off the road into a lay-by in case I crashed.

For me, four statements of the same material, *perceived as* four statements of the same material, is about the right number for tension due to boredom to set in and for change to be expected.

An example of this template is provided by the first nine bars of *Inhibited Tendencies*. Bars 1-2 are repeated four times, then bar 9 presents a rhythmic change and a drop in register, although the flutter-tonguing and pitch content still group this bar with the previous music. The long held A then constitutes a new pitch, a change in register and a radically new note duration at this moment in the piece.

4.4 Template 4

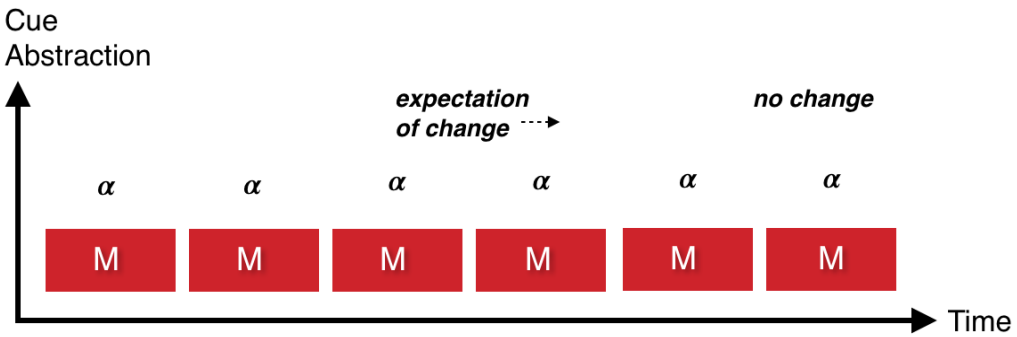

Figure 4.4: Template 4 used in *Inhibited Tendencies* and *One Cliché After Another*

Here, six repetitions, again perceived *as such*, is enough for me to expect change but then realise that no change is likely to come, providing a sense of closure. An example is the sixfold repetition of bars 1-16 in *One Cliché After Another*.

4.5 Reflection

In both pieces I am satisfied that, to my ears, the templates at work have the desired effects. However, what may be the elephant in the room circling the pairing of these two pieces together is their contrasting styles. Without undertaking an exploration of the aesthetics surrounding my choices of material, which would be beyond the scope of this thesis, there is nevertheless room for examining more precisely what these effects are for me and why they might be so. Indeed, so far, all that has been mentioned in this regard is *affect*, without further differentiation of this category.

Meyer argues that affects are essentially undifferentiated, but that affective behaviour is differentiated since it contains a knowledge of the stimulus situation (Meyer, pp. 18-19). However, David Huron's ITPRA Theory of expectation casts doubt on this first point, since even the supposedly subconscious "Reaction" response allows for reflexes such as withdrawal from touching hot objects, which may originate in the spine rather than the brain, and learned responses to situations such as a violation of grammar in spoken or written language, which are manifestly cognitive (Huron, pp. 13-14).

Whatever the validity of either Meyer or Huron's arguments, it is true for me that whilst the syntactical methods used to generate affect in the two pieces in the portfolio being discussed are very similar, the affective behaviours I exhibit when listening to them are very different, in accordance with the different "stimulus situations" or material combinations being used.

When listening to *Inhibited Tendencies*, until the repeated section in bars 125-7 my affective responses are relatively muted: the very nature of writing for solo oboe, an instrument with very limited capacity for timbral variation and the unyielding division of the music up to bar 125 into contrasting blocks of only a few bars in length might mean that even when sections are intended as contrasts, such as bars 50-56, where the new gestural ideas of glissandi and the prevalence of silence are introduced for the first time, they are perceived more as variations or fluctuations within the musical discourse. Indeed, the notion of "musical discourse" seems appropriate to me since I hear the material as semiotically neutral, or perhaps situating itself within a tradition of "abstract" modernism where the intent is one of semiotic neutrality.

However, when the writing sharply turns towards air sounds of various kinds and exact repetition of a three-bar unit, such is the novelty of this passage, both within the history of solo oboe writing and in the context of the piece itself, that I find this turn tremendously emotive. The precise affect is akin to Huron's concept of "awe", where the "danger" remains fixed (Huron, p. 32):

> The gasp is a response to a sustained danger…If the danger is manageable, then the gasp will be a prelude to *awe*…the gasp can be evoked by stimuli that at first appear dangerous, but on reflection are recognized as not actually dangerous.

In Huron's ITPRA Theory of Expectation, it is this reflection or "Appraisal" that has the final say in the affective experience: it impinges on the affect that is *remembered*.

Contrast this with my experiences whilst listening to *One Cliché After Another*: for me the most affectual moments in the piece come in the contrasting section from bar 30 to bar 72, but here the tone is very much one of humour. Until the tuba writing in this section, the "clichés" used in the piece had been for me, commonplace musical objects, but not those associated with the evocation of humour per se. However, it is here that the stony-faced juxtaposition of these objects from different cultural universes finally breaks character into an awareness of the humour inherent in its own wackiness, with a plodding tuba line destroying any semblance of grace in the flute and violin

writing. A similar demonstration of self-awareness occurs with the trombone “wah-wah” figure, which first appears in bar 49 and destroys any potential evocation of “innocence” in the piano alberti figures which come to the fore at this point.

Since what is at stake here is a comparison of the material that sets up an expectation with the material which inhibits that expectation, the concept of a musical metaphor may also prove useful. In Hatten’s *On Metaphor and Syntactic Troping in Music*, juxtapositions of musical topics in examples from Beethoven are shown to generate emergent meaning: for example, in the finale of Beethoven’s *Piano Sonata in A Major*, Op. 101, the topics of “fanfare” and “learned style” combine to suggest “the authoritative learned style” (Hatten, p. 96). Hatten goes on to mention, with particular appropriateness for an analysis of 21st-century music (p. 98):

> Tropes need not be limited to topics and themes; they may also creatively function at the syntactic level…A syntactic, or *syntagmatic*, trope involves two kinds of interactions. One is between the novel juxtaposition and the more normative syntax it displaces; we understand the new in terms of the old. But the interaction most akin to metaphor is that between two interpretations of a temporal juxtaposition, one going in and one coming out.

The first idea of metaphor, relating to the Beethoven example, can be applied to the examples from *Inhibited Tendencies* and *One Cliché After Another* to give the metaphors “air sounds and repetition within a traditional modernist style” and “arabesque versus ‘oom-pah' within a world of clichés”; the former being a metaphor of serious interest provoking a serious reaction for me, whereas the latter I find funny due to its absurdity. Regarding the ideas of metaphor contained in the quotation above, as far as I am aware, in both these pieces there is no “normative syntax” to displace. However, as for the concept of metaphor as between two interpretations of a temporal juxtaposition, it is possible that the stark contrasts presented in both these pieces which displace the more muted contrast that a development section might give in a typical sonata-type musical argument will give rise to further shock.

So far in this thesis, my theoretical preoccupations have been with setting up expectations and dealing with their consequences, assuming a “linear temporality” in the sense of Kramer. However, after writing the two pieces just discussed I felt the need to explore alternatives to expectation-driven models for form and emotional affect in turn.

Rather than simply not setting up expectations, which itself would be an “inhibition of a tendency to respond” if the Margulis idea of expectations being “a fundamental strategy of the human mind” is to be believed, what I was after was a music where any expectations I might have were *implicitly already resolved*. By removing their “affectual” components, one could reduce the templates presented previously to two models: one of perceived structural flatness, and one consisting of a single linear process as in the diagrams below.

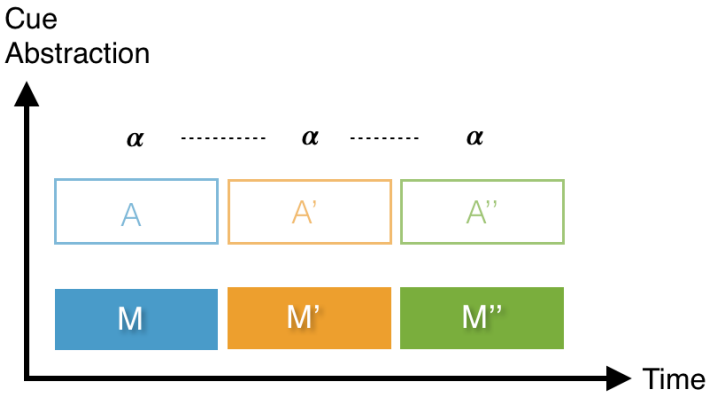

Figure 4.5: First potential template for expectations being immediately realised

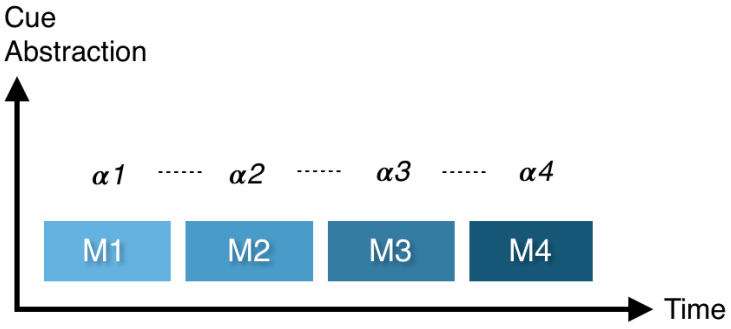

Figure 4.6: Second potential template for expectations being immediately realised

However, even in these models, there may be room for Huron's "tension response" to induce an emotional reaction: in the first case, during the second section M', one might be expecting a third section M'' and in the second diagram tension might set in between the sections in a similar manner.

The idea of expectations being "implicitly already resolved" suggests to me a music where all that was expected to happen, *had happened* and where the music had achieved its structural goal and was simply resting in the goal-state, as a sort of extended coda. As the discussion above might show, removing all linear or expectation-driven arguments from a piece would be a difficult, if not impossible task. However, luckily the phenomenon of music resting in a "goal-state", in a sort of extended "now", once expectations had been concluded, is a well-documented one.

During a performance of Eric Satie's *Vexations*, Kramer noted a change in his mode of listening, once the obsessive repetition of the piece meant that he had "given up expecting" (Kramer, p. 379). In this case, any expectation of the music changing had been resolved, or rather, it became clear that no change was to come, and his "present expanded, as [he] forgot about the music's past and future".

Note that this experience is also directly comparable to the Stewart Lee quote given earlier where, presumably, once he had accepted that the "Shitbottle" sign was going to reappear ad nauseum, he attended to its inherently funny qualities, free of its context within his journey by car. Both Lee

and Kramer are documenting their responses to material which is exactly repeated in time, but I experience the same mode changes also when listening to music which is simply *repetitious*.

Bryn Harrison's extended piece *Vessels* for solo piano was constructed as a long set of micro-variations upon a single pitch cycle, with parameters for variation including rhythm, register and pitch-ordering. As the piece progresses, this micro-variation is also applied to groups of bars and whole pages of material (Harrison 2013, p. 57). The result is material with a high degree of consistency and self-similarity, although rarely is there exact repetition or at least, for me, not repetition *perceived as such*.

Up until around the 2-minute mark in the recording made my Philip Thomas, I hear the music as a sort of rondo, or perhaps a series of cycles, returning to a central pitch B often accompanied by a lower C and making new departures, further away each time. Perhaps it is because the music begins with a rising octave on B and that the octave sonority draws attention to itself amongst music which is largely free in intervallic content that I hear this a reference point for the following material.

However, around two minutes or so, it becomes clear that the deviations made from these pitches and/or the rising octave gesture will not be formally significant and tension sets in as I expect change.

After another minute, my mode of listening changes as this expectation dissipates. I am drawn to the micro-structuring of material again: in particular, the way that harmonic motion is suggested yet never clarified. As the piece progresses further, I also notice that I examine ever more subtle, isolated or holistic aspects of the material: the expressive qualities of each note for its own sake, the accidental differences in weight given by the pianist to each note, even the a distant comparison of the performance with an aria-basso continuo relationship between the upper and lower registers.

This attention to more subtle aspects of material as it is repeated or reiterated for extended lengths of time is acknowledged by Harrison since he often has paraphrased Bridget Riley in stating that repetition can act as an "amplifier" (e.g. Harrison 2013, p. 42; Harrison 2007, p. 4) for such details.

With both my own experiential analyses and those of others concerning non-goal-oriented music, I now have an template for form, if it can be called so, which might arise from considering alternative mechanisms for emotional affect to that of musical expectation: in particular, one in which the properties of material are revealed over time by a compositional technique dealing with repetition or reiteration. What these mechanisms are and how they might be exploited within a musical composition will be the subject of the next chapter.

5. Alternative Mechanisms

The most comprehensive, albeit speculative, overview of mechanisms for emotional affect is provided by the article by Juslin, Liljeström, Västfjäll and Lundqvist from the recent *Handbook of Music and Emotion* entitled "How Does Music Evoke Emotions?". In the article, seven mechanisms are proposed based on revisions of a preliminary study made by Juslin and Västfjäll, where seven mechanisms, six of which were retained in the updated theory with the redundant "cognitive appraisal" replaced by "rhythmic entrainment", were shown to be broadly adequate for participants to explain their emotional reactions to music in their everyday lives. These are the following (Juslin et al, pp. 620-3):

1. *Brain stem reflex*: whereby "one or more fundamental acoustical characteristics of the music are taken by the brain stem to signal a potentially important and urgent event. All other things being equal, sounds that are sudden, loud, dissonant, or that feature fast temporal patterns, induce arousal in the listener."
2. *Rhythmic entrainment*: "whereby an emotion is induced by a piece of music because the powerful, external rhythm of the music interacts with an internal body rhythm of the listener such as heart rate, such that the latter rhythm adjusts towards and eventually 'locks in' to a common periodicity."
3. *Evaluative conditioning*: "whereby an emotion is induced by a piece of music simply because this stimulus has often been paired with other positive or negative stimuli."
4. *Emotional contagion*: "whereby an emotion is induced by a piece of music because the listener perceives the emotional expression the music and then 'mimics' this expression internally."
5. *Visual imagery*: "whereby an emotion is induced in a listener because he or she conjures up visual images…while listening to the music."
6. *Episodic memory*: whereby "the music evokes a personal memory of a specific event in the listener's life."
7. *Musical expectancy*.

As alternatives to musical expectancy, all except 3. and 6. might lend themselves well to the treatment outlined at the end of the previous chapter. Clearly 3. and 6. are much more subjective and I have declined to produce music with the aim of studying these particular mechanisms: in the case of 3., this is because I am uncomfortable with the idea of re-enforcing whatever irrational musical prejudices I might hold about certain musical procedures or styles and for 6., I would be equally uncomfortable about presenting material which was evocative of personal memories without an investigation into whether the material in question would have personal resonance for others with a similar cultural background to me.

The three mechanisms that remain are thus rhythmic entrainment, emotional contagion and visual imagery. The rest of this chapter will examine *200 Requests for Empathy* and *After a Nonexistent*

Painting, which explore the latter two mechanisms of emotional contagion and visual imagery, respectively.

5.1 Emotional Contagion

200 Requests for Empathy consists of 200 melodic fragments, each with harmony drawn from an Ab major scale and within a relatively narrow tessitura, separated by five-second rests. The performer is also given three character types to enact — “cantabile”, “nervoso” and “senza espressione” — each of which come with their own gestural material which mimics these characters. In particular, the cantabile phrases exhibit smooth dynamic contours and are usually linearly directed either as arches in dynamic or pitch (bars 5 and 35 respectively, for example) or with a syntax that resembles the AABA phrase structure of the dramatic classical style (bar 9, for example), the nervoso passages come with sharper dynamic profiles including the use of fortepiano (first occurring in bar 7) and the senza espressivo bars are usually held notes at a uniform pianissimo dynamic (first occurring in bar 11).

The emphasis here was on isolating character-stereotypes whilst keeping material contrasts minimal, so that the model of repetitious music revealing these properties which was outlined at the end of the previous chapter could apply. Since the emotive mechanism of emotional contagion is concerned with the replication of emotional expressions exhibited by music, this mechanism provides a link between emotion “perceived” and emotion “felt” by a given listener. Studies have shown these two emotion types to be independent, but that emotional contagion acts as a catalyst for the former to couple with the latter (Egermann & McAdams, p. 139). Hence, *200 Requests for Empathy* could be viewed as an opportunity to test the transference of the three character types into emotional affect.

For me, due to the work’s tessitural and harmonic reduction, after a short period of listening to the music, the effect of pitch is lost completely and my mode of listening becomes attuned to subtle differences between gestural types and then, after it is clear the gestural types will continue to be recycled, the performer’s communicative intent; after I have accepted that what is presented with regards to gesture and pitch content is all that there will be for a long time, the piece becomes about the *performance* rather than the music. Perhaps paradoxically, it seems to me that the music consists of material which is differentiated enough on a local level to provide the performer with tools to *perform* in a dramatic sense, but is not differentiated enough on higher formal levels for what is *being performed* to register dramatically.

I would argue that in this sense, *200 Requests for Empathy* may not be so much a piece of music as a piece of theatre which places solo performance under a microscope and a purely sonic recording of the piece would not do the work justice: hence a video recording is included to accompany the portfolio with the performer playing from memory to emphasise the music’s theatrical component.

Research has shown that visual communication is often of equal importance to the purely musical. By surveying studies of the impact visual perception has on approval ratings of performances, Platz and Kopiez concluded that adding the the visual component to audio recordings boosted ratings by 51% on average (Platz & Kopiez, p. 71) and it has been argued that the visual element is a means by which performers can clarify their understanding of the musical structure (Thompson et al, p. 204):

> Facial expressions and gestures are also used to convey the performer's understanding of segmentation…intervallic information…and points of expectancy fulfilment or violation. In this way, visual aspects of performance signal that performers are not merely producers of sound but are themselves listeners, highlighting the musical activity as a shared experience between performers and listeners.

Indeed, Thompson notes that "music performances were almost always experienced as integrated audiovisual events prior to the invention of the gramophone and phonograph at the turn of the 20th century" (Thompson, p. 254).

Since, as I have outlined previously, I find the purely musical effect of the piece to be minimal, *200 Requests for Empathy* becomes a study in the transference of musical character as *seen* into affect as felt, so perhaps a further piece would be needed if character as *heard* were to be investigated. However, there is empirical evidence to suggest that the visual profile alone of a musically enacted character is sufficient for it to be perceived (for example, Dahl & Friberg, p. 433). So if such a piece were composed, it might prove to be similar in effect to this solo flute piece.

5.2 Visual Imagery

After a Nonexistent Painting explores material types which when combined might suggest a visual scene or "painting", and in this regard it is worth emphasis that the intention of the piece was to explore visual imagery arising from the listening process rather than to construct a formal correspondence between music and visual art.[11]

The score is given as a series of repeated loops for each instrument of the ensemble, without predetermined temporal alignments. All instruments start together and hence the music that follows presents an opportunity to reflect both on the material assigned to individual instruments as it is repeated (and in the case of the piano and tam-tam, varied in dynamic) and on the changes to the sonic surface as instruments rest, recommence playing and move around the concert space.

I intended each of the instruments to be representative of the following characters and/or musical topics:

[11] This is in contrast to Bryn Harrison's aesthetic stance for example, where he views the work of certain abstract painters as representing "an art of equivalence" (Harrison 2007, p. vii).

Instrument(s)	Representation
Flute	Panicked bird sounds
Oboe and Clarinet	Plaintive / melancholic, melodic expression
Horn and Trumpet	Ominous marching, with malicious intent
Trombone	Dark, sorrowful, resigned
Tam-tam and Suspended Cymbal	Erupting volcano
Piano	Violent impacts / explosions
Violins	Monks praying
Viola and Cello	Flying / spattered debris

Figure 5.2.1: Table of musical topics coupled with instrumental roles in *After a Nonexistent Painting*

For me this conjures up romantic ideas of man versus nature, as well as religious ideas of fate not unlike those found in John Martin's *The Destruction of Sodom and Gomorrah* from 1852 or Thomas Cole's *Manhood* of 1842 from the collection of paintings *The Voyage of Life*:

Figure 5.2.2: John Martin's *The Destruction of Sodom and Gomorrah* (1852)

Figure 5.2.3: Thomas Cole's *Manhood* (1842) from *The Voyage of Life*

In order to give a more detailed account of how these descriptions might transfer to the musical writing, a consideration of musical topics and how these might combine metaphorically will again be useful.

For the flute, a direct association with bird song has a considerable heritage which includes references from Mozart's opera *The Magic Flute*, Beethoven's *Symphony No. 6*, Saint-Saëns' *Carnival of the Animals* and Prokofiev's *Peter and the Wolf* to name but a few examples[12]. In addition, that the writing for the instrument in this piece is high in its register, fast and harmonically dissonant suggests to me degrees of intensity, urgency and anxiety respectively.

The melodic writing given to the oboist and clarinettist has parallels in the searching melodies in the later works of Elliott Carter and in Harrison Birtwistle's music, due to the legato writing and rhythmic language which floats over divisions into pulse. In particular, a comparison with the latter's *An Interrupted Endless Melody* for oboe and piano may prove fruitful.

An Interrupted Endless Melody was written as a memorial for oboist Janet Craxton, and although as Robert Adlington rightly remarks, "the absence of a determinate beginning or end means that the melody never sounds particularly assured of its purpose [giving] an impression of aimlessness" (Adlington, p. 163), the performance directions of "flessibile" and "sempre cantabile" as well as an allowance for a wide dynamic range given to the oboist, which may be utilised freely, ensure that at

[12] For a more detailed exploration of "musical onomatopoeia", see Castelões.

least the character of the music is one of expressivity and direct communication. Indeed, it would surely be strange for Birtwistle to write a piece suitable as a memorial for a deceased oboist that did not aim to communicate directly.

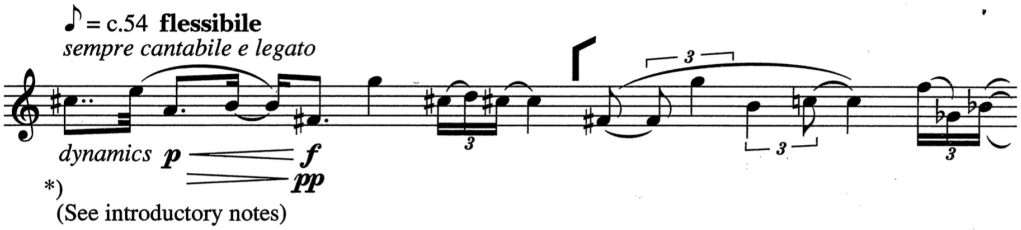

Figure 5.2.4: Opening of oboe part for Birtwistle's *An Interrupted Endless Melody*

The expressive character of the oboe material is given further meaning in the Birtwistle by its blunt superimposition on the more punctuated and overtly repetitious piano accompaniments and this also has a parallel in my own ensemble piece, where the lyrical writing given to the oboe and clarinet has to fight against the surrounding noise. As Adlington notes (Adlington, p. 163):

> In Birtwistle's music, the potential of melody to symbolise some form of human agency is enhanced by the fact that his melodies are frequently contrasted against rather brusque ostinato patterns. The mechanical cast of these ostinati almost inevitably means that melody will take on a humane quality by comparison — whether Birtwistle intended it or not.

The topic of human expression in the face of the mechanistic is perhaps most explicit in *The Triumph of Time*, an orchestral piece written as a response to the 16th-century etching of the same name by Pieter Bruegel, given below.

Figure 5.2.5: Pieter Bruegel the Elder's *The Triumph of Time* (date unknown)

Bruegel's etching depicts the character of Time as a destroyer, leading a procession followed by Death and Fame and as Andrew Clements remarks, "beneath the wheels and hooves of the procession the ephemera of human life are constantly being crushed to extinction" (Liner notes for Birtwistle 2004, p. 5). Moreover, the roles assigned to the instruments in the Birtwistle reflects this conflict between human endeavour and the supernatural. For example, the plaintive cor anglais is introduced at Figure 2 (bar 22) in the face of the unchanging and expressionless harp, string, tam-tam and brass ostinati which appear and disappear with a disturbing lack of consequence. Indeed, for the rest of the piece, it is individual instruments which take on focal roles with soli which exhibit melodic direction pitted against textures which are left undeveloped: the slowly unfolding saxophone, oboe, cor anglais and horn lines against brass stabs and swells, mallet percussion interjections amongst other textural assignments.

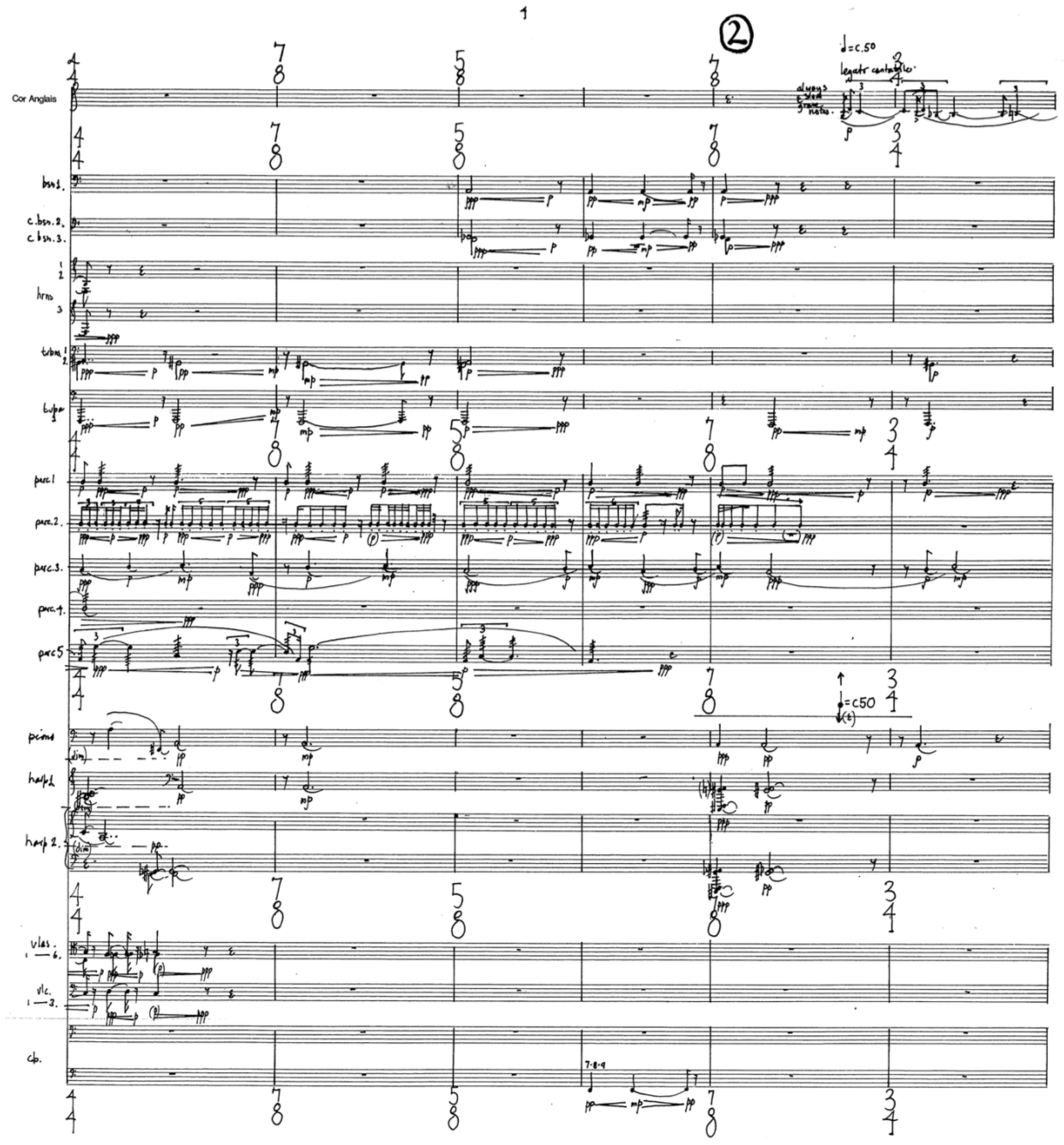

Figure 5.2.6: Cor anglais entry at Figure 2 in Birtwistle's *The Triumph of Time*

In *After a Nonexistent Painting*, the oboe and clarinet are given the only melodic writing and the other instrumental parts either present single sounds (in the trombone and suspended cymbal), sounds with simple variations (in the horn and trumpet, tam-tam, piano and violins), or material which is more likely to be perceived as texture with pitch and rhythmic definition obscured (in the flute, viola and cello); hence the topic in question might carry itself from the Bruegel to the Birtwistle to my piece.

The interjecting brass "stabs and swells" in *The Triumph of Time* could also have been a subconscious point of reference for the trumpet and horn loop. Here, the topic of an invading mechanism is perhaps made more explicit by the use of the tritone interval, or "diabolus in musica". As Arnold Whittall summarises, "the tritone has continued to be associated with evil, especially in Romantic opera", citing the examples of Hunding in Wagner's Ring cycle and Scarpia in Puccini's *Tosca* (Oxford Music Online entry for "tritone"). The topic of aggression may add further weight to this image through the use of brass flutter-tonguing, used to provocative, expressionistic ends in the first of Schoenberg's *Five Orchestral Pieces*, Op. 16 and in the second of Webern's *Six Pieces for Orchestra*, Op. 6 to give but two examples.

The material assigned to the trombone in my ensemble piece suggests to me a sobbing male voice, perhaps masculinity being overpowered in the face of this impending evil, offering a different human reaction to the pleading lyricism of the oboe and clarinet.

The tam-tam and suspended cymbal depict something ominous with their long crescendo in the "funeral march" movement of Webern's *Six Pieces for Orchestra*, Op. 6, and the topic of the devil apparently arises with the prominence of tam-tams in the sketches for Stockhausen's planned, but unrealised, *Luciferum* to be inserted in *Sonntag* from his opera *Licht* (Hartwell, p. 400) and also in the "devil-music" from George Crumb's quartet *Black Angels* which features regularly occurring tam-tam strokes. Certainly the idea of the devil is tied up in ideas of fire and violence, so this might explain my topical "volcano" assignment to these instruments and perhaps also the topic of the "natural" helps to reinforce the volcano idea from the use of these instruments as crashing waves in Debussy's *La Mer*.

The violent piano clusters used in *After a Nonexistent Painting* are used in a similar manner to their evocation of the primitive and violent in George Antheil's *Sonata Sauvage* and Leo Ornstein's *Wild Men's Dance*. Of the Antheil Sonata, Whitesitt notes that the titles of the three movements[13] indicate "an exuberant and programmatic evocation of Antheil's conception of three elements of primitive culture" (Whitesitt, p. 91) and critical accounts of the Ornstein, which has the translated title "Danse sauvage" include references to the "diabolic" (Oja, p. 14) and the "primordial" (Broyles & Von Glahn, p. 79).

[13] These unfortunately appeal to racist stereotypes and will not be repeated here: in the notes to the CD recording by pianist Steffen Schleiermacher, the original titles are omitted.

The homophonic trio of violins is given a siciliana rhythm and which mimics the opening harmony of the famous Allegri *Miserere.* Grove Music Online notes that “from the 19th century to the 20th the siciliana was associated with pastoral scenes and melancholy emotions”, and coupled with the reference to the *Miserere*, a solemn prayer is strongly suggested.

The pointillistic textures given to the viola and cello resemble the results of the stochastic techniques employed by Xenakis in works such as *Achorripsis*, and in contrast to its construction using probability distributions Xenakis hints at more imagistic motivations in *Formalised Music* (Xenakis, p. 9):

> If…we wish to model a large mass of…string pizzicati, we must know these mathematical laws; which are anyway no more nor less than a dense and refined expression of a chain of logical reasoning. Everyone has noticed the sonic phenomena of a huge political crowd of dozens or hundreds of thousands of people. The human river spreads a word of order in a unanimous rhythm… Then occurs the collision between the demonstrators and the enemy. The perfect rhythm of the last word of command breaks up in a huge mass of chaotic shouts which also spread to the tail. Imagine moreover the reports of dozens of machine-guns and the whistle of bullets which add their punctuation to this total disorder. Then, rapidly, the crowd is dispersed and after sonic and visual hell follows a detonating calm, full of despair, dust and death.

Of course, my ensemble piece could also be heard in an “abstract” sense: the definition of the melancholic expression topics in the oboe and clarinet, for example, necessitates a syntactically rich construction with a contour of tension and release shaping two-part and three-part counterpoints for the clarinet and oboe, respectively and as James Tenney’s *Having Never Written a Note for Percussion* shows, a tam-tam roll is an inherently interesting sound. Meyer gives an example of the dichotomy between examining the details of an object in a more abstract mode and perceiving the object as a single Gestalt defined culturally with the following example (Meyer, pp. 84-5):

> The symbols
>
> *R S E T E L T*
>
> appear at first to be discrete, individual stimuli. If so instructed, the mind can group these symbols, but it does so with difficulty and the result is somewhat arbitrary…Notice, however, that these same
>
> *L E T T E R S*
>
> immediately form a convincing and satisfactory Gestalt, which has as its basis of organization not a natural mode of grouping but one learned through experience.

Moreover, as a result of the piece’s modular construction, the contexts in which these sounds are presented are constantly changing: at extremes there is the possibility that one of the instrumental loops could be played in the course of the piece with the other parts silent, or, as at the beginning of the work, all instruments could be playing simultaneously and these two scenarios would entail very different listening modes. In the first instance, the focus might be on the qualities of the material loop in isolation whereas in the second, the focus would be more on the interaction between different lines of counterpoint.

The context in which these combinations of loops appear in time will also have a bearing on the piece's overall effect. For example, a performance could begin with a prolonged section where all instruments played out of synchrony, then suddenly change to juxtapositions of synchronised loops with silence, with perhaps less instruments playing at once; such a change would be likely to draw attention to itself whereas the effect of the piece might be more muted if there were gentle fluctuations throughout in numbers of instruments playing and whether these instrumental statements were vertically aligned. The stipulation that players move around the performance space as the piece unfolds may also impact on the music's perception over time: David Huron argues for the primacy of location as a musical variable by noting that from an adaptational perspective, it is vital that an organism can locate sounds to avoid danger and sounds from different locations differ in timbre (Huron, pp. 102-3).

The compositional situation in *After a Nonexistent Painting* may be similar to the presentation of Peter Ablinger's *Der Regen, Das Glas, Das Lachen*, where despite the visually evocative title and the fact that the music contains sounds which may be comparable to those of rain, glass being struck in some way and laughter, the composer's commentary on his website is more abstract in nature (http://ablinger.mur.at/engl.html):

> What is played is extremely dense and a large part of the orientation is left to the listener. Over long periods he is left alone to listen in to the various levels of the piece, to find his way IN THE SOUND.
>
> This process of listening in is an essential part of the piece itself, the actual event, the reason it Game into being. No-one is "forced" when listening to select or distinguish between the different levels when listening to the piece. Nor is THE SOUND of the piece made up of its individual levels. I would like to say, IT OCCURS beyond the levels, through the levels, and in the ears of the listener.

5.3 Reflection

As the extended critiques which follow quite succinct introductions to the compositional methods used for *200 Requests for Empathy* and *After a Nonexistent Painting* might suggest, the mechanisms of emotional contagion and visual imagery are the ones of which I have the least first-hand musical experience, and this makes these two pieces, at least with respect to their aims, experimental. For the former mechanism, perhaps it is because I am male and have undergone formal musical study[14] and at least from my experience of composition lessons, seminars and masterclasses, using "visual imagery" as a means of analysing music would constitute a highly unusual approach and perhaps the exclusion of this mechanism in my thinking and discussions about music has set in to deeper levels which influence my musical perception.

These two mechanisms are strongly linked to topic theory and my discussions of *200 Requests for Empathy* and *After a Nonexistent Painting* have perhaps implied concerns with topical unity: for the

[14] See Kreutz et al, p. 69, for the conclusions of a musical test of the empathizer-systemizer theory of Baron-Cohen which takes into account factors such as gender and musical training.

former piece, the aim was to affirm relationships between character and gestural types and for the latter, the topics suggested by material given to individual instruments were intended to add up to the topic of an imagined picture. However, on reflection I suspect that I actually have a stronger emotional reaction to music which places topics in conflict with each other, or in terms of emotional mechanisms, violates cultural expectations dictating that material within a particular topical universe must be combined only with other material within that universe: the mechanism of musical expectation is by far the most powerful for me as may be evident by the lengths to which I have gone to suppress what power it gains through musical syntax. It is for these reasons that in subsequent music composed, I have avoided direct appeals to the mechanisms of emotional contagion and visual imagery since such appeals would not be grounded in personal experience and I have no interest in presenting music which only affects me in a limited way emotionally.

After the pieces discussed in this chapter had been written, I felt the need to enter a period of writing without any pre-compositional templates in place in order that I might discover new ways of structuring material in the process. This would be a richer alternative to only pursuing different combinations of techniques already developed. In any case, if the seven mechanisms for emotional affect proposed by Juslin et al. were the only ones and were inbuilt, then there would be no need to deliberately pursue them since whatever music I wrote would engage with them regardless.

The following chapter examines two pieces, *String Quartet* and *Seven Syllables* which were written after my engagement with theories of emotion in music, but which still bear traces of compositional techniques previously derived.

6. Post-Theories

The *String Quartet* was the first piece written without any pre-compositional conceptions of the kind examined in this thesis, but the templates from Chapter 4 nevertheless re-emerge and there are also ways in which the piece's semantics conform to more traditional associations between material and might act as a further clarifier for its syntactics, in contrast to previous music where traditional semantical ideas were either destroyed (for example, in the irreverent juxtapositions of *One Cliché After Another*) or made relatively neutral (in *Inhibited Tendencies*).

The repeated section at the beginning of the piece is an example of this. The four statements of bars 1-6 feel to me more like eight statements of bars 1-2 since bars 3-6 are gesturally similar to bars 1-2 with the same pedal C in the cello, and hence I have a similar listening experience to that implied by Template 4.

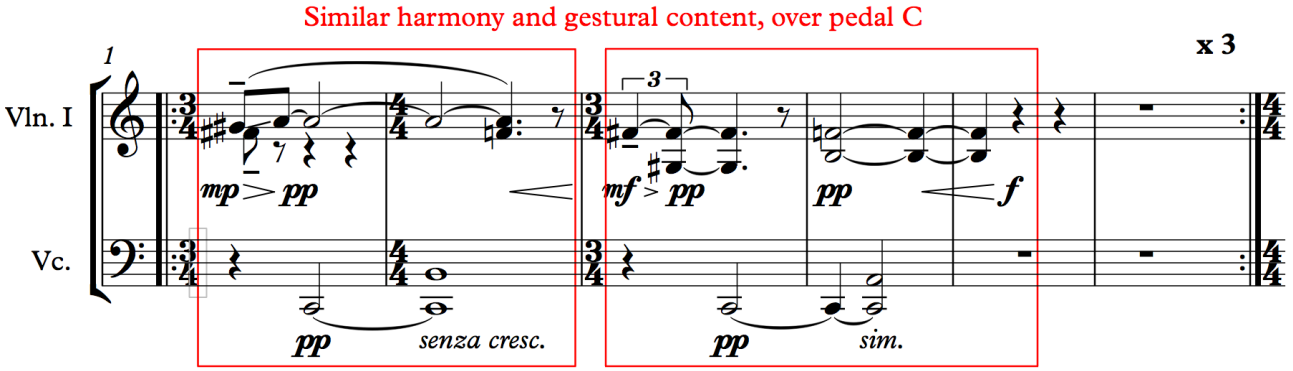

Figure 6.1: Opening six bars of *String Quartet*

Moreover, the musical topics in this section suggest a *resignation* that hope for change is lost: the "sighing" first violin with relatively consonant major second intervals (without octave transposition), perhaps hinting at a tinge of optimism, are pitted against expressionless held chords which are relatively dissonant. Musical parallels could be found with the repetitious opening of Henryk Górecki's second string quartet *Quasi una fantasia*, Op. 64, which Adrian Thomas describes as a "lament" (Thomas, p. 136), or the reiterative music of Feldman's late period which has at least hints of the mournful and resigned as the composer has suggested in interview (http://www.cnvill.net/mfmetzgr.htm):

> I do in a sense mourn something that has to do with, say Schubert leaving me. Also, I really don't feel that it's all necessary any more. And so what I tried to bring into my music are just very few essential things that I need. So I at least keep it going for a little while more.

The subsequent structuring of this material then resembles Template 1: bars 7-15 represent the second section in the template which is similar to bars 1-6 by way of the repetitions, quiet dynamic, tempo and intervallic content, before bars 16-23 present a contrast in these parameters and bars 24-35 recapitulate the quiet dynamic, repetitiousness and tempo. However, the rise in dynamic into bar 31 before a slow tailing off suggests a kind of coda: an additional inflection which re-violates

the expectation of quietness but is nevertheless perceived as still belonging to bars 24-30 due to its lack of change in harmony, rhythm and register.

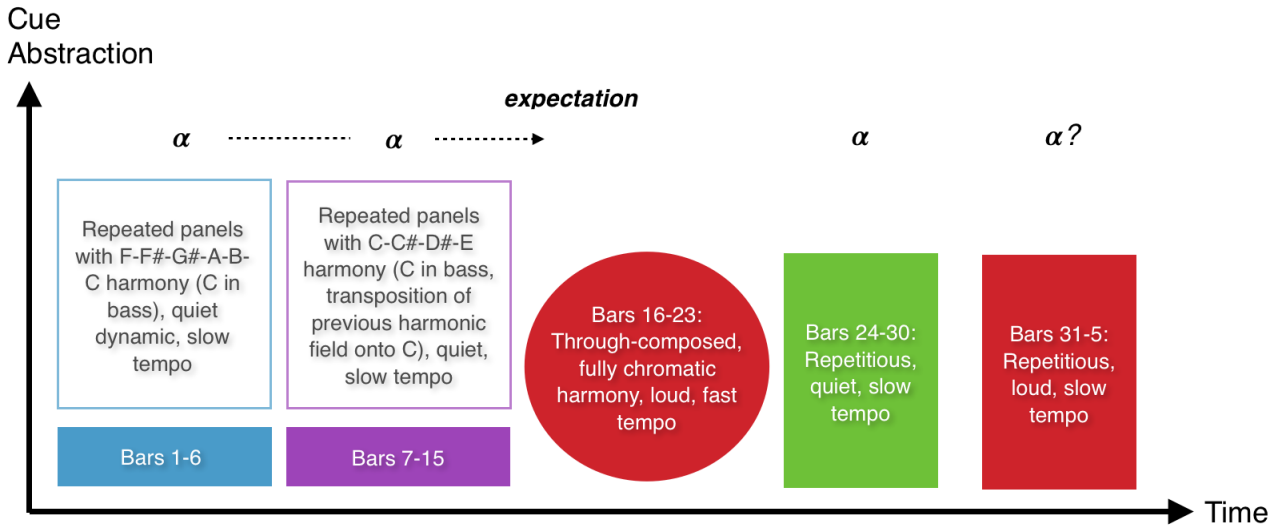

Figure 6.2: Resemblance of bars 1-35 of *String Quartet* to Template 1

The metaphor at work in this section also arises from more conventional topical associations: bars 16-23 provide a desperate lashing out in the face of the previously resigned lament, not dissimilar to the intense accumulation of polyphonic, chromatic material in the second "lamentoso" movement of György Kurtág's *Stele* for orchestra which commences suddenly after the quiet, dissonant chords of the first movement.

This *String Quartet* is one which has highlighted the possibility of expectations being set up and violated on different levels which do not necessarily align with the rigid hierarchically used templates of Chapter 4. One such example is the introduction of new gestural and textural material in bar 36: the sudden reduction in texture to a solo viola and the more lyrical writing given to the instrument is something new in the music at that point and even though bars 1-35 present a closed musical unit, this contrast is enough to have the effect of surprise for me. Note also that the material introduced has a similarly balanced phrase structure, rhythmic profile and motivic development to the writing given to the oboe in *After a Nonexistent Painting*, so the topic of human expressivity in the face of something ominous (perhaps the predominantly mechanistic instrumental writing in the previous section of music) may also be at work.

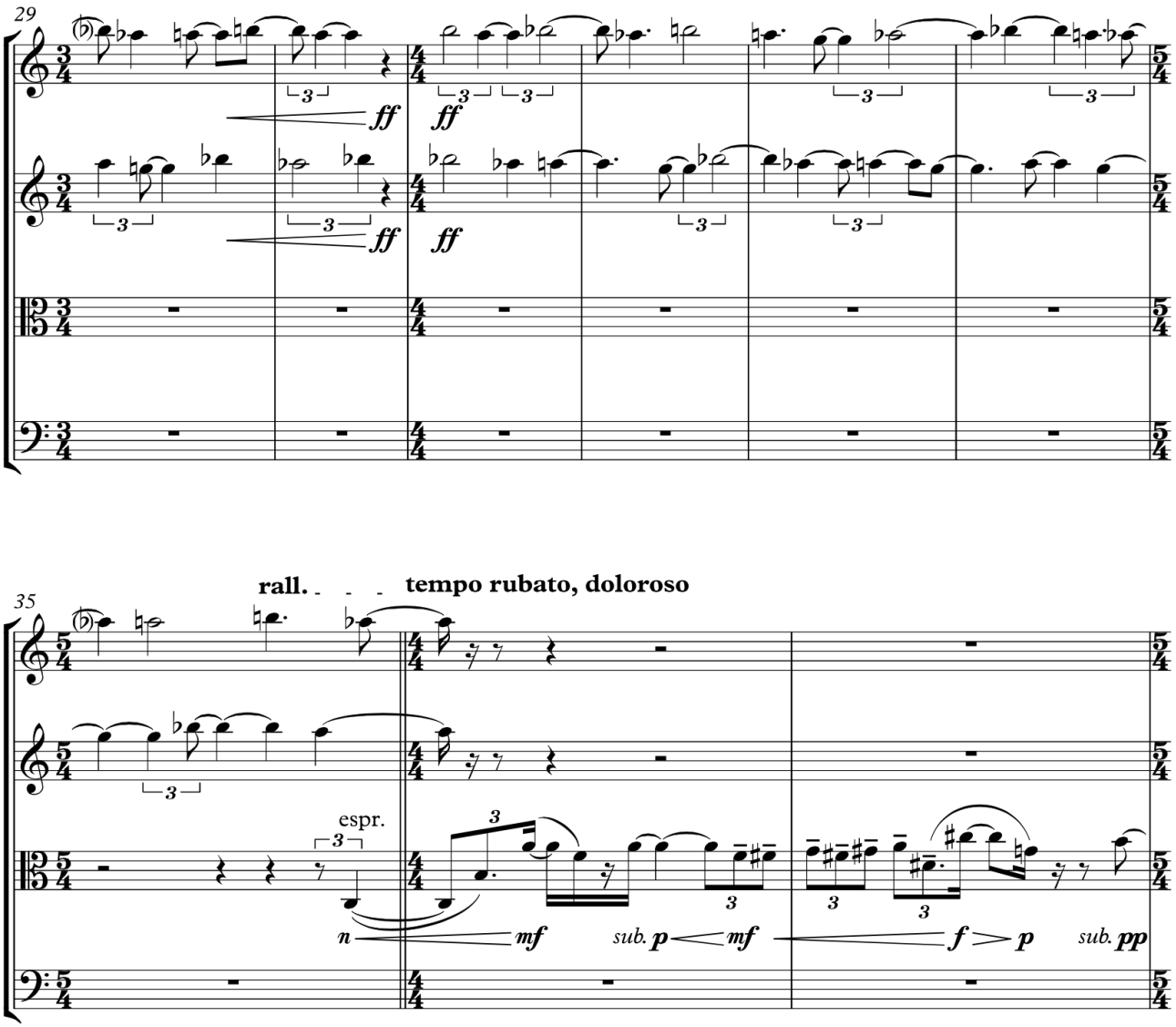

Figure 6.3: Viola entry at bar 36 of *String Quartet*

A larger contrast then comes in bar 58 with the introduction of quasi-tonal material with a clear sense of pulse: again, these properties are contrasting with the harmonically greyer material largely without demarcated beats which characterised the composition up until this bar. Here there is a subversion of what might otherwise be material associated with the upbeat, in a manner similar to that in the "grotesque" waltz within the third movement of Shostakovich's *String Quartet No. 8*, which Sarah Reichardt compares to a "Dance of Death", containing topics such as "the devilish fiddler" (Reichardt, p. 78). In David Fanning's book dedicated to the quartet, he notes Shostakovich's use of the waltz as a subversive device both in the work in question and in the first and second quartets and the fourth symphony, and explains the discomfort induced by its appearance in *String Quartet No. 8* as due to "the unresolved tension of the exceptionally violent preceding *Allegro molto*" (Fanning, p. 88-9). Indeed, in my own quartet, the introduction of the material marked "folle" in bar 58 comes right at the climax of the ascending sequence in the solo viola which starts in bar 43 and the process of resolving the tension arising from this ascent is delayed until the intervening material gives way as suddenly as it had arrived in bar 66.

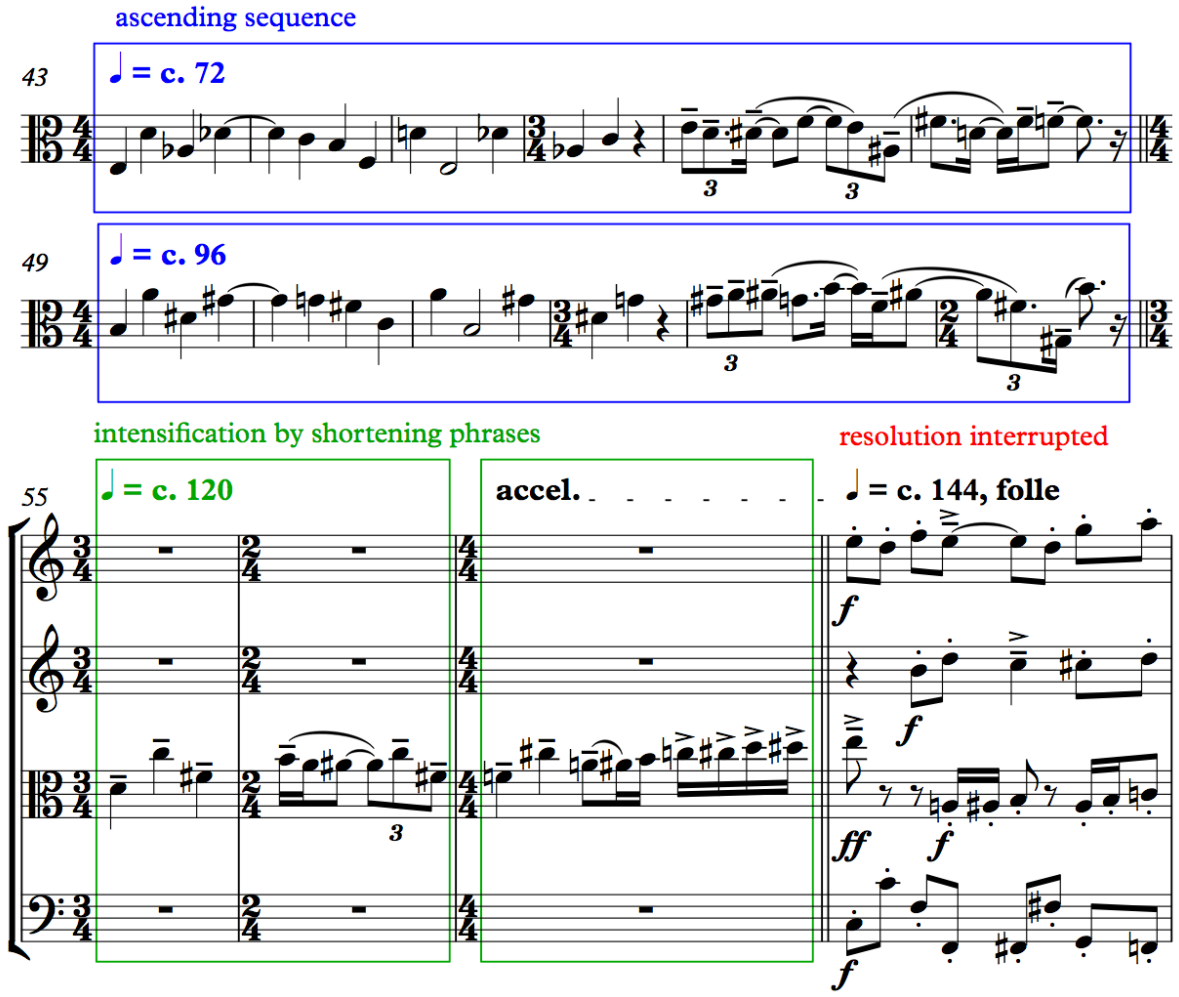

Figure 6.4: Ascending sequence in viola from bar 43 of *String Quartet*

Although my inserted section is not a waltz, it nevertheless retains the skittish, off-the-string characterisation of the Shostakovich with which it also shares a similar preference for erratically inserting unprepared gestures such as the screeching leap in tessitura and dynamic in the first violin part in bar 60. There is also a similarly "obsessive, impotent quality" to the individual lines and harmony to that which Fanning highlights in the Shostakovich (p. 92): my deployment of harmony in this section consists mostly of aimless semitone shifts which ignore the starting allusion to C major, and there is a clichéd appropriation of the octave displacement baseline figure in the cello (bar 58) and viola (bar 60) as well as a harmonically ignorant repetition of the F#-G# cell in the second violin in bars 59-60, to give a few examples.

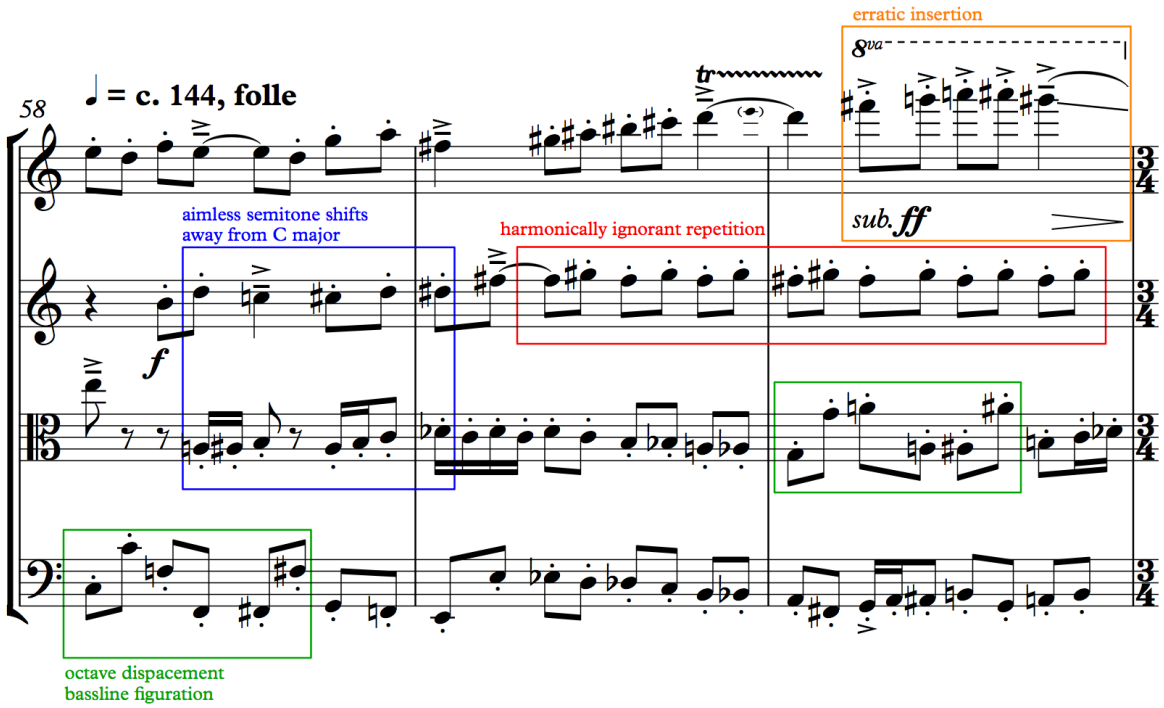

Figure 6.5: Inserted contrasting section from bar 58 of *String Quartet*

On the highest structural level, the *String Quartet* resembles Template 1 again, with bars 1-108 and 109-141 broadly stabilising a pattern of repeated loops played without expression, followed by an instrumental solo in a more lyrical style, followed by a more contrapuntal development of the material in the solo section. The section comprising bars 142-215 then presents a contrast before a recapitulation of the previous pattern from bar 216 to the end. However, as with the coda section previously mentioned in bars 31-5, there are relationships between musical parameters which perhaps blur sectional boundaries. The contrasting section (bars 142-215) finishes with a passage from bar 196 to 215 containing exclusively held chords in the strings; these start in rhythmic unison, but more contrapuntal combinations are explored as the passage progresses. However, the recapitulation of the starting tempo of the composition together with repeated loops in bar 216 comes with these held chords in the background as an afterglow, albeit at a quieter dynamic, giving a sense of ambiguity as to whether the tension introduced by the faster, louder and generally more aggressive section has really been released. The piece also finishes with a coda from bar 255 to the end, which constitutes both a release of the tension accumulated through the developmental passage in bars 245-251 due to the increases in dynamic and textural activity, but also an inflection through the introduction of new off-the-string, sul ponticello writing.

In addition, the “folle” section previously mentioned does not transfer influence to higher structural levels: there is no analogue of this music in the section consisting of bars 109-141 and hence it is not stabilised as a point of reference, or in other words, it is not abstracted as a part of a cue to be contextualised with subsequent music. Of use in clarifying this point is the notion of statistical regularity in music, which as David Huron notes, plays a large part in shaping expectations related

to pitch material (Huron, pp. 64-71)[15]. Put simply, musical events which occur more often than others form stronger expectations that they should occur again. In the context of the section under scrutiny in my *String Quartet*, the "folle" section is not of sufficient length in comparison to the lyrical material which surrounds it to be able to overpower the latter and hence I do not remember it as significant, even though it produced a strong effect at the time of entry. Although bars 142-215 resemble the section in terms of articulation and dynamic, I make no comparison in the process of listening because the section was forgotten, and the material entering at bar 142 appears as shockingly new.

In a similar manner, although at the time of presentation the viola solo in bars 100-108 induces tension due to the low amount of information being presented for an extended length of time, it is precisely for this reason that it is not sufficiently memorable to have a significant formal impact when compared to the surrounding material: the writing before it has more contrapuntal interest, and the section after it presents harmonic and timbral contrasts.

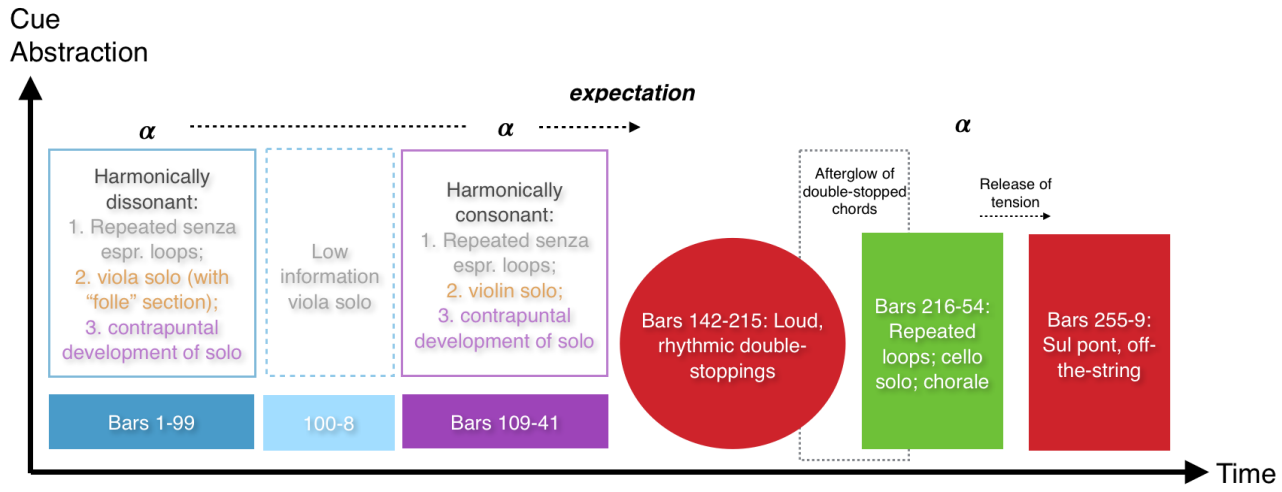

Figure 6.6: Highest structural level of *String Quartet*

This play with what material is remembered and transferred to higher-level structures through the notion of statistical regularity seemed a good way to move beyond the templates of Chapter 4, whether applied consciously or not, and a performance of Michael Finnissy's *Lost Lands* by the Quandt Ensemble at the RNCM in January 2015 served as an inspiring example of how this might occur.

[15] Surprisingly, there appears to be little literature considering the application of the concept (including the use of Markov chains) to other musical variables than pitch; Abdallah & Plumbley 2003 gives a mathematical model for musical surprise based on modelling energy envelopes as a sequence of linearly transformed Gaussian random variables and the use of conditional probability, but the model relies on prior knowledge of probability distributions drawn from the music to be analysed. Their 2008 paper appears more sophisticated, but unfortunately I lack the expertise in probability and statistics required to be able to comment on its success; in any case, the paper only includes a pitch-based application of the model to early Philip Glass so it remains to be seen how it would fare when presented with music with a greater parametric complexity.

What sparked my interest in the piece was the way in which the work presented a series of musical events which induce tension but then, afterwards, are forgotten or of no significance and return me to something like my original listening state as if the events had never happened. For example, from listening to the recording of *Lost Lands* made by Topologies under the Metier label, the bass of the piano holds a key role for me. Even though the same rumbling gesture is stabilised by its repetition from the outset, the way the piece draws my attention to many different variations of material in the other instruments, such as the harmonic movement between consonance and dissonance at around 1'58'' and parts dropping out at 5'40'', means that subsequent appearances of the piano bass seem new and unexpected. There are also plays on segmentation, in other words, which sounds belong to what section: for example, I ask questions of whether the increase in intensity in the instrumental writing is indicative of a climax in a rhetorical sense at 7'15'', or whether this is just new material for a new section since the same material then persists with its intensity rather than backing off. I also wonder whether the ebbing away from the piano climax at 10'25'' demarcates a unit characterised by tension and release, or is just material "filling in" between the next reiteration of the piano material at 11'00''. It is not until 20'40'' with the appearance of violin material, which has a familiar sound yet is contrasting by being persistent, that time starts to move forward perceptually for me with an extended section followed by a complete contrast given by the saxophone solo at 22'23'': this could bear resemblance to Template 1, and when the piece ends it is clear that no fourth section in this template will occur.

The plays on segmentation in this sense appear to be a play on musical topics: that music indicative of a climax could be used for more neutral purposes and that a musical unit appearing as a traditional arc of accumulation and dissipation could be pulled apart with its constituent components developed separately. However, rather than embarking on an exploration of topical combinations, it was the insertion of sections of "forgotten" material into the templates of Chapter 4 suggested by the analysis above which interested me as a starting point for further composition.

My piece for mezzo soprano and ensemble entitled *Seven Syllables* begins with what is (for me) a similar sense of disorientation[16]. Here, four perceptually distinct gestural types are presented: in chronological order, a quiet tremolo swell, quiet staccato semiquavers, a short and sharp attack and a "sighing" strong-weak gesture. These gestures are then subjected to variation and with their order of appearance changed each time, resulting in a resistance to the crystallisation of any macrostructures beyond the level of each gestural unit.

[16] Disorientation in this context could be reformulated as a musical inhibition of a tendency to segment in the language of Meyer and music not included in the portfolio has explored this concept further.

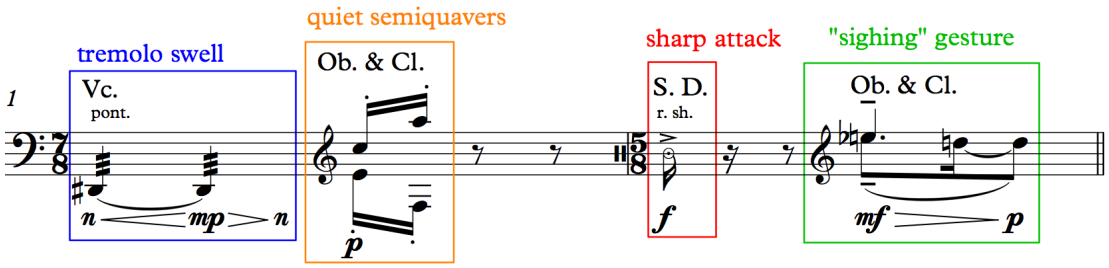

Figure 6.7: Four gestural types presented at the opening of *Seven Syllables*

Much of the subsequent material, when analysed in isolation, could also be shown to exhibit disorientating properties in a similar manner. Beyond this micromanagement of musical material however, the approach of inserting contrasting sections into the templates of Chapter 4 applies. If the sections with the singer are omitted up until bar 123, then the remainder commences with two sections characterised by the material discussed previously (bars 1-11 and 16-29), followed by a contrasting percussion solo which develops its material of the previous music, and finishes with a recapitulation of the opening material (albeit with a harmonic change, bars 41-43), thus resembling Template 1.

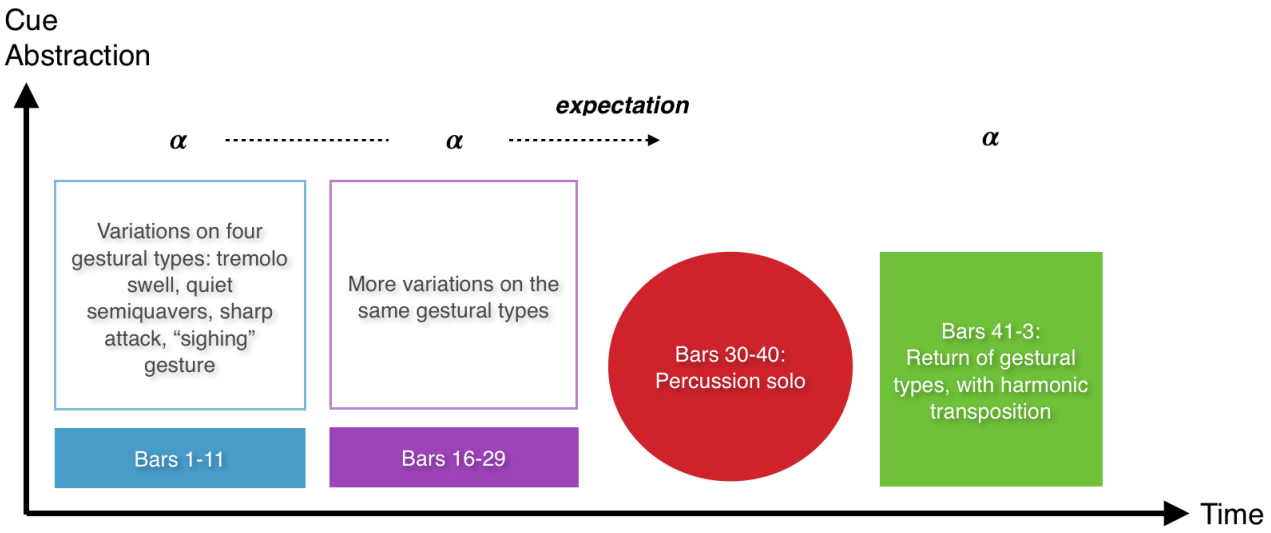

Figure 6.8: Resemblance of bars 1-43 of *Seven Syllables* to Template 1, omitting sections with singer

This is followed by a section which contains similar material, but structured in an orientating manner to give two clearer musical units (bars 97-101 and 104-7) via a more explicit usage of Template 1 and again, by omitting the sections with the mezzo soprano.

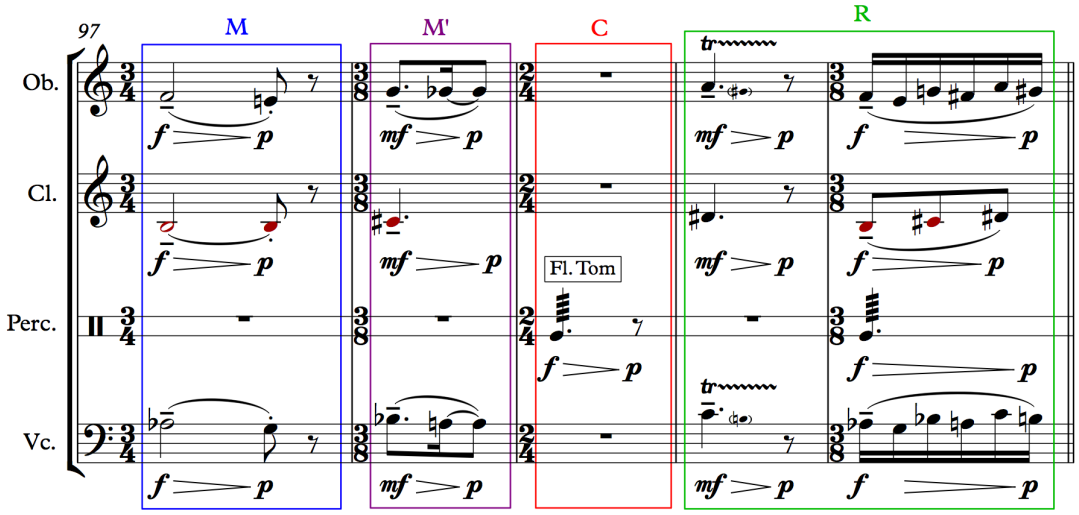

Figure 6.9: Resemblance of bars 97-101 of *Seven Syllables* to Template 1

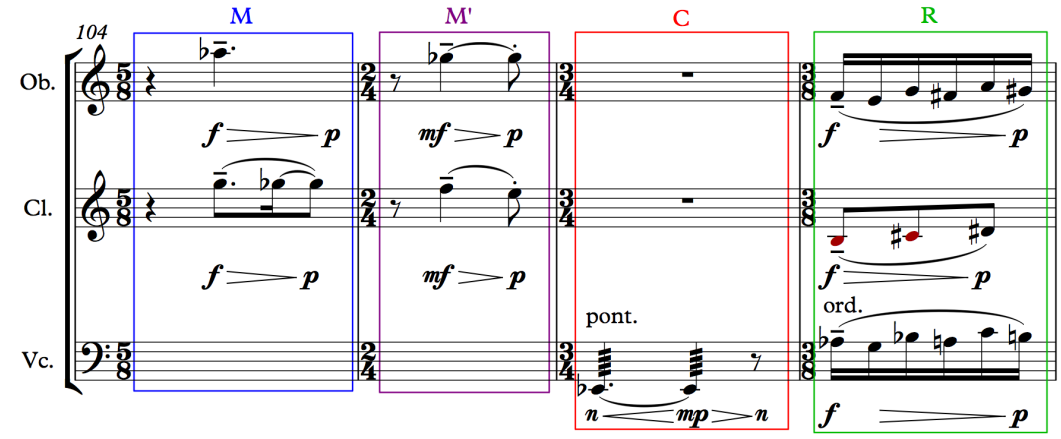

Figure 6.10: Resemblance of bars 104-7 of *Seven Syllables* to Template 1

An episodic section, consisting of bars 108-122 then develops the material of bar 107, which to me has the effect of extending and adding more weight to the previous section. Hence if the sections with singer are omitted, the music up to this point resembles two sections (bars 1-41 and 97-122, separated in time by the extended section with singer and percussion) with similar material but different macro structuring of it: the first syntactically confused on the bottom level, but resembling Template 1 above on the next highest level whereas the second section is syntactically clearer on the bottom level with a binary form above.

When listening to *Seven Syllables*[17], I hear the intervening material with the mezzo soprano mentioned previously *as such* because even when extended sections such as bars 44-96 are presented, they are of low information. In particular, bars 13-15 and 102-104 are too short to be able to compete with the surrounding material, bars 44-96 consist only of recombinations and variations of the material presented in the opening bar which already exhibits static properties

[17] Unfortunately, the recording I have obtained of the piece is unsuitable for public presentation and has been omitted from collection of recordings on the CD accompanying the portfolio.

through the predominance of the repeated pulses in the triangle and the fixed pitches in the mezzo soprano and bars 111-9 consist also of simple variations of the two gestural ideas in bars 111-2.

However, the interjecting singer also becomes a cue for the material up to bar 123 which is used to enable further contrast for the subsequent music. In bars 123-150, the soprano is used only as another instrumental line and is given vowel sounds in contrast to the previous deployment of monosyllabic words to emphasise this. The lines given to each instrument in this section are more extended and there is a richer counterpoint between them in contrast to the predominantly cellular music prior to this passage; thus this section presents contrasting material to the previous music. The section arising from the splintered material of bars 151 until the end then marks a return to the pointillism of the opening, but with even more separation between cells and the division of *Seven Syllables* on the highest structural level into four sections given by bars 1-96, 97-122, 123-150 and 151-185 can be seen to resemble Template 1:

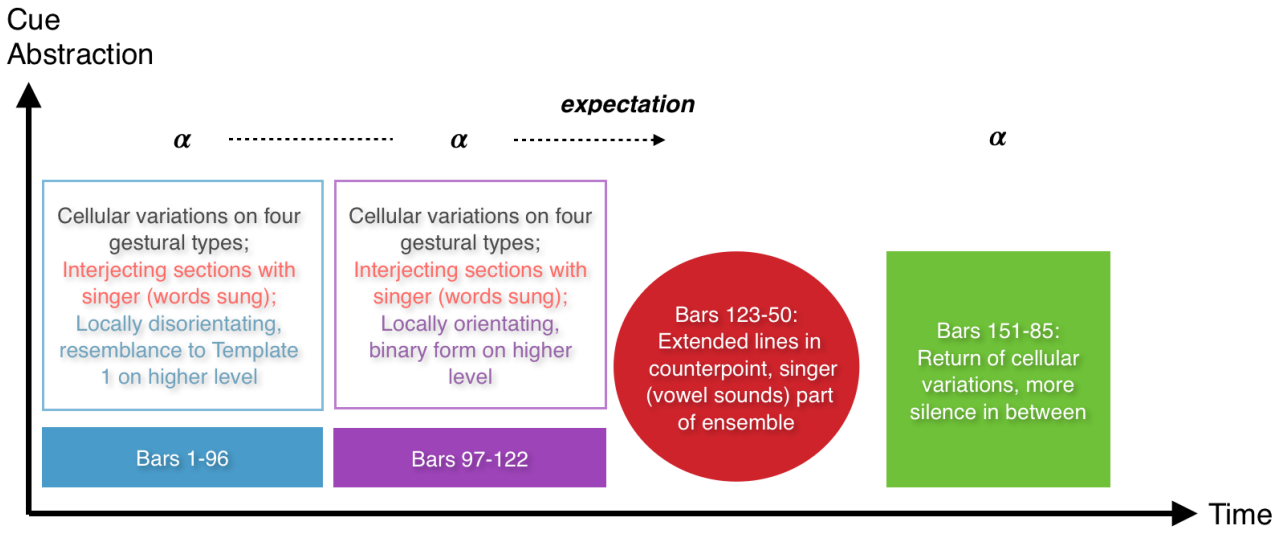

Figure 6.10: Resemblance of overall form of *Seven Syllables* to Template 1

In contrast to the *String Quartet*, this ensemble piece embraces the clashing of more conventional topical associations. For example, there is an inherent tension in the opening cello tremolo exacted due to its low register, quiet dynamic and obscurity of pitch due to the tremolo and the sul ponticello marking, hence the “nervoso” character is projected a direct way. However, this is followed by a throwaway allusion to a V-I cadence, then a violent but more semiotically neutral attack from the snare drum, then a sighing gesture, which leads to semantic confusion. Even later from bar 123 where the material given to each instrument becomes more consistent and the players are allowed to perform “espressivo”, the twisting and turning of the harmony and tessitura back in on itself denies any dramatic sense of expression. The words and performance directions given to the singer also reflect this semantic schizophrenia which is never resolved: for example, in the space of bars 13-5, the character changes from one “slightly concerned”, to desperately urgent, to one perhaps in the middle of a considered argument:

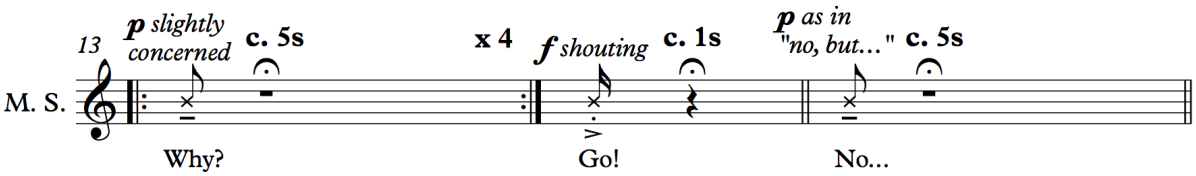

Figure 6.10: Bars 13-5 of *Seven Syllables*

Even the words themselves are denied any stable context: for instance, the word “don’t” is shouted urgently in bar 51 but then used to express mild disappointment with the gently articulated “don’t go” in bar 111.

7. Final Reflections

One of the themes emerging from the reflections of the last few chapters is the dichotomy between syntactics and semantics, with the latter emerging in increasing strength as a factor impinging on both my compositional concerns and experiences listening to my own work. More specifically, the thesis began with semantic considerations absent and a concern with "linear processes" viewed as abstract patterns generating expectations for continuation and musical motion. Then follow *Inhibited Tendencies*, which as I have stated, I perceive as more semantically neutral and *One Cliché After Another* takes pleasure in presenting material from different topical universes alongside each other in an absurdist manner and it is not until *200 Requests for Empathy* when an engagement with notions of musical "character" is made, albeit, as I have noted, only with their visual components. After this point, excluding perhaps *Seven Syllables*, semantic associations are given equal weight to formal organisation, be it in the visual imagery of *After a Nonexistent Painting* or in the metaphors of the *String Quartet* which reinforce structural templates employed previously.

There are theories of emotion, hitherto not explored, which come from the world of music aesthetics and are formulated semantically, or at least semiotically. Davies' statement that "music is expressive by presenting…emotion characteristics in appearances" (p. 239) is one such, but as a supposedly comprehensive theory for emotion in music, this fails entirely for much post-war music: according to Davies, I should be completely unmoved or there should be no stable correlation between music and affect when listening to all early minimalism, Alvin Lucier's *I am Sitting in a Room* and Laurence Crane's *20th Century Music* to give a few examples, when some of these consistently offer the strongest musical listening experiences that I have had. To be more precise, Davies' position could be reformulated as giving priority to the mechanism of emotional contagion, when, as empirical studies from music psychology have shown, this is far from the only way that music can induce emotion. Susanne Langer's thesis for music as "forms of feeling" in *Philosophy in a New Key* also fails with the same examples given above.

To discuss a theory defined negatively, it is to be noted that my approaches in this thesis are not at odds with Eduard Hanslick's propositions that music neither expresses nor does it evoke definite emotions in a manner consistent across individuals[18]: my appropriations of theories of emotion in music in this thesis are clearly personal ones in keeping with the latter statement, and rather than implying the expression of emotional types, where applicable I have referred to characters and topics which might *suggest* certain emotions by association. Of course, Hanslick does allow for the arousal of emotions caused by music, whereas a recent Hanslickian Nick Zangwill attempts to deny even this possibility with the following argument (Zangwill, p. 33):

[18] Taken from *The Beautiful in Music* (7th edition, trans. G. Cohen), New York: Da Capo Press 1974.

> Given that almost all emotions, like pride or fear, have intentional objects other than the music, in so far as we are having such emotions when listening to music, we are not listening to or thinking about the music. We are thinking about what the emotions are about instead.

Zangwill's polemic suffers from the same deficiencies as Davies' theory in adopting an exclusively "top-down" approach to music perception and provides no mention of, let alone any answer to, arousalist accounts which deal with experiences *whilst listening* to music such as that of Meyer and Huron. The examples discussed in both the Zangwill and Davies (of which there are few and none detailed) consider sections discussed in isolation with little regard for musical context and the role of musical expectations is absent in both. More curiously, Davies devotes several pages to reviewing "movement in music" including experiential notions of "tension and release" (Davies, p. 233), the tonal tonic which "exercises a gravitational pull on other notes" with discords that "strain for resolution" (p. 236) which apparently are only felt, if at all, through mimesis according to his theory or as if affects were not felt until their generating patterns were completed: that tension were not felt until it had been released. In Roger Scruton's *The Aesthetics of Music*, it is also telling that emotions are discussed in the chapter on "content" rather than in that entitled "form".

The interaction of semantics with syntactics is crucial to the idea of a musical "narrative", as proposed by Vera Micznik, who uses Roland Barthes' conception of denotation and connotation in his *Elements of Semiology* to examine the topics suggested by musical material in music by Beethoven and Mahler and their syntactic and semantic structures deduced from this model. Perhaps in answer to Hanslick's reference to a rose at the beginning of his polemic,[19] Micznik notes (Micznik, p. 211):

> The noun 'rose' at the denotative level means for everyone the flower of that name; then syntactically it may act as a subject; and at the connotative level it may mean 'blood' to one person or 'love' or 'optimism' to another. So may a waltz motive simply 'be' or 'denote' certain pitches and rhythms; it may denote an 'opening motive' at a syntactic denotative level; but it may also suggest a whole gamut of additional functions, moods or dance associations at the connotative level.

She then goes on to infer (p. 212):

> Connotations are not just personal or subjective associations left at the discretion of the interpreter; rather, they are intrinsic meanings rooted in conventions. Even though they originate in what Chomsky calls the more subjective individual performance of the respective interpreter, they belong to a specialised ideological and cultural system of competence which precedes and generates the respective individual performance and, therefore, they are accepted intersubjectively.

[19] "The rose smells sweet, yet its subject is surely not the representation of the odour" (Hanslick, p. 11)

However, Micznik admits that musical “narratives” arising from the structure produced by semiotic units are not as rich as literary narratives in that they cannot express propositions and can only suggest changes in states as is common in literary fiction (pp. 218-9). Nevertheless, this tool, together with Hatten’s deployment of a metaphor mentioned in previous chapters used to reveal more subtle topical blends, strongly suggests compositional exploration for me as a way of refining or enriching my existing explorations in syntax as I perceive it. This thesis may constitute a document for the exploration of emotion-inducing musical stimuli, but for future work, it may be “knowledge of the stimulus situation” in the words of Meyer, which will provide creative motivation.

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Appendix 1: List of Submitted Compositions

Work Title	Instrumentation	Duration	Year of Composition
Unexpected Processes	fl, ob, cl, 1 perc (vib, SD, t-t), tpt	c. 6’	2013
Flute Concerto	solo fl; 3.2.ca.3.2; 4.3.2.btbn; 3 perc (1=wbl, t-t; 2=bgos; 3=cbl, xyl); pno; strings (div à 2)	c. 9’	2014
Inhibited Tendencies	solo ob	c. 9’	2014
One Cliché After Another	2.2.ca.2.1; 4.3.2.btbn.1	c. 9’	2014
200 Requests for Empathy	solo fl / afl	c. 33’	2014
After a Nonexistent Painting	1.1.1.0; 1.1.0.0; 2 perc (1=t-t, 2=scym); pno; 3.0.1.1.0	5-7’	2014
String Quartet	2 vln, vla, vc	c. 17’	2015
Seven Syllables	msop, ob, cl, 1 perc (SD, tdrm, tr, wbl, vib), vc	c. 10’	2015

Appendix 2: Track Listings for Audio CD and DVD

Audio CD

Track	Work	Duration	Performer(s)
1	Unexpected Processes	6’43”	Mark Heron / RNCM New Ensemble
2	Flute Concerto	8’42”	Maria Chybowska / Steffan Morris / RNCM Brand New Orchestra
3	Inhibited Tendencies	9’01”	David Curington
4	One Cliché After Another	10’04”	Piero Lombardi / RNCM Brand New Orchestra
6	After a Nonexistent Painting	6’06"	Carlos Agreda Arango / RNCM New Ensemble
7	String Quartet	18’38”	Diverso Quartet

DVD

Track	Work	Duration	Performer(s)
1	200 Requests for Empathy	38’53”	Maria Chybowska